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PROCEEDINGS

of the
American Society
of
Civil Engineers



AUGUST, 1925

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of the
American Society
of
Civil Engineers

INSTITUTED 1852

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AMERICAN SOCIETY OF CIVIL ENGINEERS

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SOCIETY AFFAIRS

Salt Lake City—Summer Meeting

Judged by the pleasure and enthusiasm of those attending the Summer Meeting, the event was a great success. The technical sessions and social functions alike were marked by profitable and enjoyable companionship.

The opening session was called to order by R. K. Brown, M. Am. Soc. C. E., President of the Utah Section, who presented Governor George H. Dern. Following a cordial greeting by Governor Dern, President Ridgway called on Congressman E. O. Leatherwood for a few remarks. After the papers by John A. Widtsoe, Esq., and R. E. Shepherd, Esq., the meeting was recessed to allow the audience to attend an Organ Recital in the Tabernacle.

At the afternoon session, papers relating to Irrigation, Power Development, and Land Settlement were presented and discussed. The attendance at the morning session was about 180, and in the afternoon about 140.

Thursday morning was devoted to meetings of the Irrigation, Power, Highway, Structural, and City Planning Divisions, which were well attended.

The social events contributed an important part to the enjoyment of members and guests. On Wednesday following the organ recital about 40 ladies were entertained at the Country Club with a delightful luncheon, followed by cards and an automobile ride. That evening, following an informal dinner, Professor Frederick J. Pack gave an illustrated talk on Lake Bonneville. Later, Randall H. Jones, Esq., gave a travelogue of the Southern Utah National Parks, illustrated by beautifully colored slides. The attendance was about 175.

Thursday afternoon was spent in a trip to the open-cut copper mines of the Utah Copper Company, at Bingham, Utah. The party returned by way of Saltair, a bathing resort on Great Salt Lake, where many enjoyed the bathing. After a picnic supper, the members and guests returned in the late evening to the city.

All day Friday, July 10, was given over to a motor-bus excursion around Salt Lake City, thence 40 miles to Ogden, Utah, and up beautiful Ogden Canyon as far as the city's Artesian well system. Lunch was served at the Hermitage in the Canyon, returning in time for out-of-town visitors to catch the late afternoon trains. About 75 enjoyed this trip, which terminated the meeting. The whole gathering was notable for the completeness and precision of the excellent arrangements, for which details the Local Committee deserves full credit. The total registration numbered 217.

Meeting of the Board of Direction

This is an abstract of the notes of the Secretary and subject to approval by the Board of Direction at its next meeting.

Meetings of the Board of Direction were held on April 20 and 21, 1925, at the Hotel Gibson, Cincinnati, Ohio, at the time of the Annual Convention, the following being in attendance: President Robert Ridgway presiding; George T. Seabury, Secretary; and present, also, Messrs. Bowen, Brown, Bush, Chevalier, Condron, Dewell, Farnham, Fenkell, Gilman, Grunsky, Holmes, Howe, Humphrey, Ketchum, Loweth, Mason, Merriman, Paul, Raymer, Spofford, Webster, and Whitman.

Election of Secretary, Treasurer, and Assistant Treasurer:

George T. Seabury, M. Am. Soc. C. E., was re-elected Secretary of the Society; Otis E. Hovey, M. Am. Soc. C. E., was re-elected Treasurer; and William J. Boucher, M. Am. Soc. C. E., was elected Assistant Treasurer.

New Student Chapters:

In accordance with the recommendation of the Committee on Student Chapters, the Board authorized the formation of Student Chapters at the University of Wyoming, University of Akron, and Cooper Union.

Relation of Local Sections to Student Chapters:

Chairman Mason, of the Committee on Local Sections, stated that the Portland Section had adopted a certain policy with respect to the Student Chapter at Oregon Agricultural College, and expressed the hope that other Sections would take similar action.

On motion, the Board adopted the following recommendations:

"That each Local Section assume a special interest in at least one Student Chapter;

"That one way in which this interest be shown shall be an annual competition limited to the senior members of the Student Chapters;

"That this competition be in the form of papers on some engineering subject;

"That one or more prizes be awarded, and these prizes in each case be payment by the Local Section of the entrance fee and the first year's dues of Junior membership in the Society."

Special Committee on Stresses in Structural Steel Continued:

On motion, the following recommendation was adopted:

"That the Special Committee on Stresses in Structural Steel be continued on the conditions set forth by the Committee; that is, that such continuance is for the purpose of enlarging upon features of the report when the discussions following publication appear to make it advisable."

San Francisco Section Adopts Resolution of Appreciation of Service of President Grunsky and Director Huber:

Under date of February 23, 1925, the San Francisco Section transmitted

to the Board of Direction, the following resolution unanimously adopted by the Section on February 17, 1925:

"Whereas Carl Ewald Grunsky and Walter Leroy Huber, whose terms as President and Director, respectively, of the American Society of Civil Engineers recently expired, have represented their San Francisco Section and served the Society loyally and well at considerable personal and professional inconvenience and sacrifice during a period of years; and

"Whereas such disinterested public service is of the highest order given men to perform and reflects honor and distinction upon their immediate constituents;

"Now, Therefore, Be It Resolved, That the members of the San Francisco Section of the American Society of Civil Engineers, in meeting assembled on the seventeenth day of February, Nineteen Hundred Twenty-five, do hereby express their appreciation of the high personal service and devotion of Messrs. Carl Ewald Grunsky and Walter Leroy Huber and of the honor and credit they have brought to the Society; and

"Be It Further Resolved, That this resolution be spread upon the minutes of the Section and copies sent to Messrs. Grunsky and Huber, respectively, and to the Board of Direction of the Society."

American Association for the Advancement of Science:

In response to an invitation from the American Association for the Advancement of Science to the Society Messrs. E. Lester Jones, Assoc. M. Am. Soc. C. E., and Albert A. Trocon, M. Am. Soc. C. E., were appointed representatives of the Society to attend the meeting of the Association to be held in Kansas City, Mo., December 28, 1925, to January 2, 1926.

Constitution of Arizona Section Approved:

In accordance with the recommendation of the Committee on Local Sections, the Constitution of the Arizona Section was approved. The formation of this Section was authorized at the January 19, 1925, meeting of the Board.

Committee on Professional Conduct:

Several matters relating to professional conduct and ethics were reported to the Board by the Committee.

Meeting of the Executive Committee

This is an abstract of the notes of the Secretary and subject to approval by the Executive Committee at its next meeting.

The Executive Committee met on June 3, 1925, at 10:30 A. M., at Society Headquarters; President Robert Ridgway in the chair; George T. Seabury, Secretary; and present, also, Messrs. Bush, Chevalier, Humphrey, and Treasurer Hovey.

Memorial to Members Who Lost Their Lives with the Sinking of the Steamer Norman, May 8, 1925, near Memphis, Tenn.:

On behalf of the Society, a memorial to the members who were lost in the sinking of the *Norman* on May 8, 1925, near Memphis, Tenn., was adopted, as follows:

"IN MEMORIAM

"The American Society of Civil Engineers, through its Executive Committee, records with profound grief the great loss it has sustained by the deaths of:

Paul H. Norcross, of Atlanta, Ga., and member of the Board of Direction,
 George Lee Anderson, of Memphis, Tenn.,
 Ralph Bosard, of Memphis, Tenn.,
 Edmund H. Bowser, of Memphis, Tenn.,
 Stephenson W. Fox, of Paducah, Ky.,
 William M. Gardner, of Memphis, Tenn.,
 William Hannum, of Memphis, Tenn.,
 Walter G. Kirkpatrick, of University, Miss.,
 Robert H. McNeilly, of Nashville, Tenn.,
 Charles H. Miller, of Little Rock, Ark.,
 Charles E. Shearer, of Memphis, Tenn., and
 William O. Walker, of Fulton, Ky.,

who lost their lives on May 8, 1925, through the sinking of the steamer *Norman* in the Mississippi River, near Memphis, Tennessee.

"The catastrophe occurred during an inspection of engineering works and at the very moment when the organization of a Local Section of the Society was being perfected. With little notice of impending disaster, the situation was met with conspicuous calmness and with the instant expression of that ideal of an engineer, namely, a personal sense of obligation to others, which will ever be an inspiration.

"These men gave evidence, as members of the Society, of their sterling worth and character, and at a time of great stress showed the timber of which they were built.

"While recognizing that life on this earth is for but a brief period at most and its conclusion is always an occasion of sorrow, nevertheless the untimely ending of the careers of these, our friends and associates, in the prime and vigor of their manhood becomes an added cause for mourning.

"In the hour of their great distress the Society extends to the families and friends of these honored members its warmest sympathy and wishes to express its deep sorrow and loss in their deaths."

"At its meeting on June 3, 1925, the Executive Committee of the Board of Direction, acting in behalf of the American Society of Civil Engineers, adopted the above memorial and directed its incorporation in the permanent records of the Society.

"ROBERT RIDGWAY, *President*
 GEORGE T. SEABURY, *Secretary*."

The foregoing memorial was transmitted to Past-President Hunter McDonald, the Society's representative, for presentation at a Memorial Service held in Memphis, Tenn., on Sunday, June 7, 1925.

Memorial Service for Director Norcross:

Memorial services for Paul H. Norcross, Director, Am. Soc. C. E., were held in Atlanta, Ga., on May 31, 1925, in which the Georgia Section of the Society, the City of Atlanta, Chamber of Commerce, Georgia School of Technology, Rotary Club, and the First Presbyterian Church, participated. It is planned to erect a tablet in memory of Mr. Norcross, which will probably be

placed on a granite boulder at the entrance to the grounds of the Georgia Institute of Technology.

Director George H. Fenkell was appointed as a Committee of one, with authority to ask members of the Society for subscriptions to the tablet.

Committee to Prepare Memoir of Director Norcross:

The President was authorized to appoint a Committee to prepare a memoir of Mr. Norcross for publication by the Society, and subsequently appointed Messrs. George W. Fuller, *Chairman*, G. R. Solomon, and Frederick H. McDonald, as such Committee.

Annual Tables of Constants and Numerical Data:

On motion, a contribution of \$100 was made toward the publication of the Annual Tables of Constants and Numerical Data, Physical, Chemical, and Technological.

Constitution of Waterways Division Approved:

It was reported that during the Annual Convention of the Society, at Cincinnati, Ohio, the organization meeting of the Waterways Division had been held and that the copy of the Constitution had been received on May 22, 1925.

On motion, the Constitution of the Waterways Division was approved.

Semi-Centennial Anniversary of Vanderbilt University:

In response to an invitation from the Trustees and Faculty of Vanderbilt University to send a delegate to the Semi-Centennial Anniversary of the founding of the University, which will be celebrated at Nashville, Tenn., October 15-18, 1925, the President was empowered to appoint such representative, and subsequently appointed Hunter McDonald, Past-President, Am. Soc. C. E.

Congress of Czechoslovak Engineers:

Karl E. Hilgard, M. Am. Soc. C. E., was appointed as the Society's delegate to the Congress Jubilaire des Ingenieurs Tchecoslovaques at Prague, June 20-24, 1925.

Cincinnati Meeting

The Annual Convention of the Society held in Cincinnati, Ohio, April 22-24, 1925, was highly successful technically and socially in spite of the fact that it was smaller than had been anticipated, the total registration being approximately 274.

On Tuesday, April 21, preceding the opening of the Convention, the first Formal Conference of Local Section Representatives with members of the Board of Direction was held. There were two sessions, 61 being present in the afternoon and 56 in the evening. During the interval between the two sessions a dinner was held in the same room. This Local Section Conference was in every way auspicious and many important subjects of interest to the Society at large and the Local Sections were discussed.

The Convention was opened on Wednesday, April 22, by C. W. Kutz, M. Am. Soc. C. E., President of the Cincinnati Section, who greeted the visiting engineers in the name of the Local Section.

An address of welcome on behalf of the City was delivered by the Hon. George P. Carrel, Mayor of Cincinnati, to which President Ridgway responded. There were 165 members and guests present at the morning session. The principal feature was the Annual Address* of the President under the title, "The Modern City and the Engineer's Relation To It," which was characterized by the technical press as a remarkable review of city growth and the material development of cities. At the afternoon session there were 150 present for the Symposium on "The Relation of the Ohio River and Its Tributaries to Transportation in the United States". The opening paper, illustrated by lantern slides, was read by Col. C. W. Kutz, who was followed by H. B. Luther and Frank H. Alfred, Members, Am. Soc. C. E., and Julian A. Pollak, Vice-President of the Pollak Steel Company, Cincinnati. The following members participated in the informal discussion of these papers: Messrs. R. N. Begien (read by J. E. Teal), Harry Taylor, L. D. Cornish, Charles S. Churchill, Charles Wuest, Jr., Charles F. Loweth, C. E. Grunsky, Charles A. Wilson, and Hunter McDonald.

The second day of the Convention, Thursday, April 23, was devoted to the programs of the Power and Sanitary Engineering Divisions.

At the meeting of the Power Division a paper describing "The Dix River Dam of the Kentucky Hydro-Electric Company", was presented by L. F. Harza, M. Am. Soc. C. E. Another paper, devoted to "The Steam Power Plant at the Mouth of the Big Miami River", was delivered by S. D. Heed, Assoc. M. Am. Soc. C. E. The attendance was 76.

Four papers were presented before the meeting of the Sanitary Engineering Division, as follows: "A Review of the Work of the U. S. Public Health Service in Investigations of Steam Pollution", by W. H. Frost, M. D., Surgeon, U. S. Public Health Service, Baltimore, Md.; "The Rate of De-Oxygenation of Polluted Waters", by E. J. Theriault, Associate Chemist, U. S. Public Health Service, Cincinnati, Ohio; "The Rate of Atmospheric Re-Aeration of Sewage Polluted Streams", by H. W. Streeter, M. Am. Soc. C. E.; and "Quantitative Studies of Bacterial Pollution and Natural Purification in the Ohio and Illinois Rivers", by J. K. Hoskins, Sanitary Engineer, U. S. Public Health Service, Cincinnati, Ohio. The attendance of this meeting was 45.

Twenty members participated in the formation of a Waterways Division. A Constitution was adopted and an Executive Committee appointed to hold over until the next regular meeting after the approval of the Constitution by the Board of Direction. This Executive Committee consists of Messrs. Harry Taylor, *Chairman*, Mortimer G. Barnes, J. F. Coleman, C. W. Kutz, and Charles M. Spofford. Mr. W. H. McAlpine was elected as Secretary of the Executive Committee.

The technical program of the Convention was relieved by several social features:

* See Papers and Discussions, p. 957.

On Monday, April 20, the members of the Board of Direction and the ladies accompanying them, were entertained at dinner by the Cincinnati Section, the attendance at the dinner being 74. On Tuesday afternoon, April 21, the ladies accompanying the members of the Board and the Local Section Representatives were taken on an automobile excursion, and a theatre party was arranged for them during the evening.

On Wednesday evening, April 22, the President and Officers of the Society held their reception, which was followed by a dinner, and an illustrated historical lecture on "The Story of the Mound Builders as Shown by the Mounds near Cincinnati". This lecture was delivered by Mr. Frederick Hinkle, of Cincinnati.

On Thursday afternoon, April 23, through the courtesy of the Engineers' Club of Cincinnati, a series of sightseeing automobile excursions was arranged. These trips included visits to the model city of Mariemont, in course of construction near Cincinnati, and to the University of Cincinnati. In the evening there was a Dinner Dance at Convention Headquarters, the Hotel Gibson.

Only 117 members and guests participated in the All-Day Boat Excursion on the Ohio River, Friday, April 24, but it proved to be a very enjoyable affair. This trip terminated the Convention program, but on the following day, April 25, a dozen or more members made an inspection of the Dix River Dam.

Catastrophe Overtakes Engineers on Mississippi Inspection Trip

Through the sinking of the Mississippi steamboat, *M. E. Norman*, on the afternoon of May 8, 1925, carrying with it among others twelve members, the Society has suffered irreparable loss.

Mystery surrounds the cause of the accident, although the details of the happening are still vivid in the minds of survivors. An excursion of engineers was in progress. Starting from Memphis, Tenn., in two Government steamers, the party had visited the Government revetment work at Cow Island Bend and was en route back to Memphis. The *Choctaw* was ahead and the ill-fated *M. E. Norman* some distance in the rear.

A conference of members interested in forming a Local Section at Memphis was in progress in the cabin, others were sitting enjoying the sail, children were heedlessly running about the ship. Suddenly the boat careened, and passengers were ordered to move toward the upper side; but the list continued and the craft capsized. Some were thrown into the swirling water, others were trapped in the housing. Fortunately, a motor-boat manned by a negro, Tom Lee, happened by and made many commendable rescues of those who had not swum to shore.

The *Norman* now rests on the bottom of the Mississippi near Coahoma Bend. Only a few bodies have been recovered; probably the others will never be found. The boat was practically new and had just passed a rigid

inspection of the U. S. Engineer Department. Evidently, the catastrophe will take its place among the many unaccountable accidents of navigation.

Sympathies of the engineering world went toward the bereaved families and communities. Mindful of its own loss the Society made every effort to comfort the living and honor the dead. It appointed delegates to attend the several memorial services which were held. The memoir adopted by the Executive Committee on June 3, 1925 (page 246), voices the sentiments of all members. Sorrow for the grave losses the Society has sustained is tinged with pride that these men in their deaths, as in their lives, reflected credit on the organization.

Flood Flow Characteristics

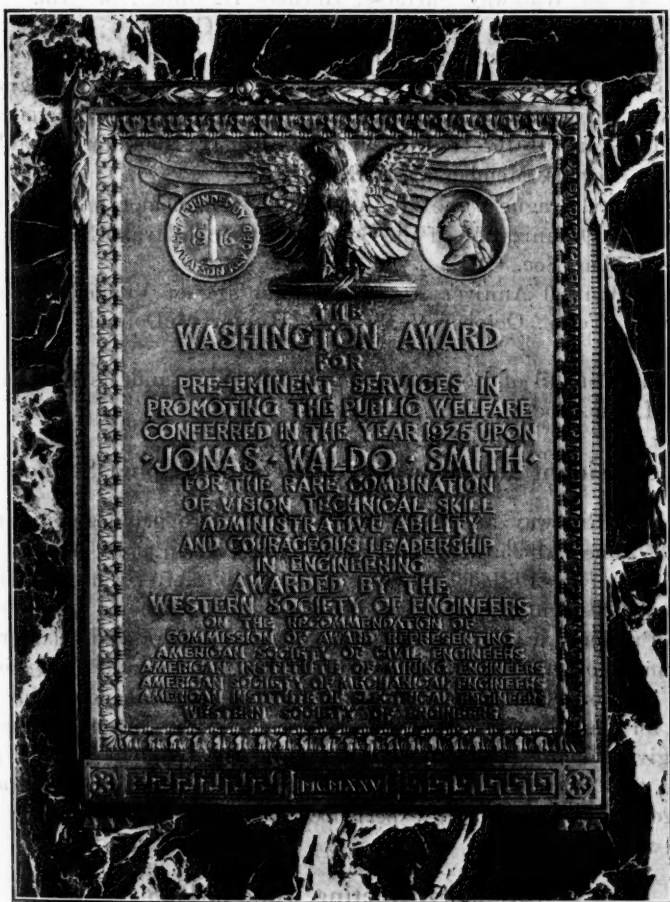
This topic formed the subject of the Society's meeting of May 6, 1925, at the Engineering Societies Building, New York, N. Y. President Ridgway presided. Fortunately, the author, C. S. Jarvis, M. Am. Soc. C. E., was able to present in person his paper on this subject, describing extensive studies carried out by him during the past few years to determine a suitable form of expression to designate flood flows. After showing slides illustrating the nature of the flood problem, Mr. Jarvis outlined the procedure by which he had collected and plotted about 1 000 data on flood flows and derived therefrom a formula of the Myers type which appeared to him to best satisfy the records. He then illustrated various features of known floods, and the propriety of expressing them through the proposed new type of formula. In discussion, Gerard H. Matthes, M. Am. Soc. C. E., speaking from the viewpoint of the Society's Special Committee on Flood Protection Data, emphasized the need of collecting further data and especially of adopting some uniform or standard form for keeping these records. He illustrated the method suggested by the Committee. Continuing the discussion, Ford Kurtz, M. Am. Soc. C. E., dwelt on the substantiation of flood records by the theory of probability and outlined the use of ten-year records in forecasting future flood flows. Additional discussions were presented by Charles W. Comstock, Thaddeus Merriman, and George Schobinger, Members, Am. Soc. C. E., each of whom made concrete suggestions as to improving the collection or use of flood data. In conclusion, Mr. Jarvis stressed the need of adopting some definite type of general formula for flood flows and reiterated his confidence in the form suggested in his paper. The meeting adjourned at 10:15 P. M.; the attendance was about 50.

Discharge of Joint Committee on Test Code for Hydraulic Power Plants

This Committee, which was appointed under the auspices of the American Society of Mechanical Engineers, has been discharged, its report having been published in November, 1923, and favorably received. The Society representatives were Clemens Herschel, Past-President, Am. Soc. C. E., N. A. Carle, and B. F. Groat, Members, Am. Soc. C. E.

Washington Award to J. Waldo Smith

To bestow the Washington Award on any engineer is to mark him as a leader of his profession. In presenting this Award to J. Waldo Smith, M. Am. Soc. C. E., the Western Society of Engineers, at its Annual Meeting, June 3, 1925, honored itself as well as the recipient. Mr. Smith is well known and well loved by engineers. The wording of the Award pays tribute to his



acknowledged position in the forefront of engineering leaders. What it did not say but what every acquaintance of Mr. Smith knows, is his standing as a man. An enviable reputation in dealing with tremendous problems and large organizations is not lightly won or quickly forgotten. The Society may congratulate Mr. Smith and the Western Society of Engineers and be proud that one of its members has been thus honored.

Society Representatives

Members have been appointed to act for the Society in various capacities, as follows:

Committee on Prizes, John H. Gregory, *Chairman*, William T. Gould and Karl R. Kennison, Members, Am. Soc. C. E.

Washington Award, William H. Finley, M. Am. Soc. C. E. (re-appointed).

American Engineering Standards Committee, Sectional Committee on Safety Code for Walkway Surfaces, Herman H. Smith, M. Am. Soc. C. E. (succeeds the late Amos Schaeffer, M. Am. Soc. C. E.).

Division of Engineering, National Research Council, F. E. Turneaure, M. Am. Soc. C. E. (succeeds W. K. Hatt, M. Am. Soc. C. E., resigned).

Meeting of American Academy of Political and Social Science, Philadelphia, Pa., May 15-16, 1925, William Easby, Jr., Benjamin Franklin, and Charles H. Stevens, Members, Am. Soc. C. E.

Congress at Prague June 20-24, 1925, to Commemorate the 60th Anniversary of the Organization of the Society of Czechoslovak Engineers, Karl E. Hilgard, M. Am. Soc. C. E.

Semi-Centennial Anniversary of the Founding of Vanderbilt University, at Nashville, Tenn., October 15-18, 1925, Hunter McDonald, Past-President, Am. Soc. C. E.

Regional Council of Regional Plan of New York and Its Environs, W. J. Wilgus, M. Am. Soc. C. E.

President and Secretary Visit Philadelphia Section

President Ridgway and Secretary Seabury were privileged to spend the evening of June 1, 1925, with the Philadelphia Section at its Annual Meeting, in the rooms of the Philadelphia Engineers' Club. After routine business was transacted, President Ridgway was introduced. His general topic was that of Subway Problems in New York City, and was illustrated by lantern slides. More than all others this is a topic with which Mr. Ridgway is at home. His remarks were of especial interest in the light of the work now being done on subways for Philadelphia. Mr. Seabury's remarks were of an informal, casual nature, giving many interesting sidelights on the frequent unusual demands made on the Secretary of a National Engineering Society, the variety of personages met, and similar experiences. The meeting was large and the welcome cordial.

Society Meeting, June 3, 1925

The June Meeting of the Society was devoted to the consideration of the topic, "Fire-Banks for Oil Storage", based on the paper by H. H. Hall, M. Am. Soc. C. E., published in the May *Proceedings*. In the absence of the author, Francis P. Smith, M. Am. Soc. C. E., a Consulting Chemical and Highway Engineer, of New York, led the discussion. Mr. Smith briefly described the experiments of Mr. Hall with their results, ending with a motion picture reel kindly forwarded by Mr. Hall to show the actual conduct of these

tests. Continuing the discussion, Messrs. H. L. Shoemaker, of the American Petroleum Institute, and Frank A. Epps, of the Tidewater Oil Company, considered the effect of the tests on the work of the oil engineer particularly with respect to the spacing and protection of oil tanks. Mr. C. P. Smith, of the Foamite-Childs Corporation, dwelt on the practical aspects of the dangers from foaming or burning oil with respect to the relative viscosity of hot oil and water as demonstrated in the test and the need of supplementary experiments to determine the actual results in practice. The last speaker was William F. Steffens, Assoc. M. Am. Soc. C. E., who viewed the matter from the standpoint of the fire protection interests and urged the continuance of the study to establish more completely a harmonious agreement as to the proper precautions for oil storing.

President Robert Ridgway presided at the meeting. The attendance was about 40.

Engineering Foundation Celebrates Tenth Birthday

Engineering Foundation began its second decennium at its regular Quarterly Meeting, May 14, 1925. This fact was marked by a subscription dinner to Ambrose Swasey, Hon. M. Am. Soc. C. E., the Founder, given by the present and former members of the Foundation, the Trustees of United Engineering Society, and the officers and directors of the American Society of Civil Engineers, American Institute of Mining and Metallurgical Engineers, American Society of Mechanical Engineers, and American Institute of Electrical Engineers. Forty-four persons were present with Mr. Swasey in the private dining-room of the Union League Club, New York, N. Y.

After dinner, Vice-Chairman Edward Dean Adams, who presided in the absence of Chairman Stillwell, presented to Mr. Swasey on behalf of the Presidents and Secretaries of the four Societies and the present and former members of Engineering Foundation, an expression of appreciation for his gifts to the Foundation. This testimonial read as follows:

"Engineering Foundation
at the beginning of its second decennium
and on behalf of the
American Society of Civil Engineers
American Institute of Mining and Metallurgical Engineers
American Society of Mechanical Engineers
American Institute of Electrical Engineers,
declares affection, pledges loyalty and
expresses gratitude to

AMBROSE SWASEY, FOUNDER,
for his vision and his gifts for the
furtherance of research and the good of mankind.
High esteem is witnessed by the signatures
hereto affixed May 14, 1925."

The testimonial, beautifully engrossed and illumined, on vellum, with pages bearing the signatures of the forty-four men, was handsomely bound in a small book for the presentation.

On behalf of the Foundation Board, Vice-Chairman Adams delivered to Past-Chairman Charles F. Rand a beautifully printed and bound copy of the following resolution adopted at the Annual Meeting in February, 1925, in appreciation of his five years' service.

"Resolved, That the Engineering Foundation Board records its high appreciation of the long, active and able service which Charles F. Rand has rendered to Engineering Foundation and the valuable contribution which he has thus enabled the Foundation to make to the Profession of Engineering and its related industries. Through his service as Chairman for five years, Engineering Foundation has become well known throughout our country and in other lands. Through him substantial contributions have been added to the endowment funds."

After the business meeting, President J. V. W. Reynders, of the American Institute of Mining and Metallurgical Engineers, voiced the sentiments of the four Founder Societies toward Mr. Swasey for his vision and generosity in making possible the establishment of Engineering Foundation.

Dr. Frank B. Jewett, a former Vice-Chairman of the Foundation, then gave an address on "Permalloy Cables for Submarine Telegraph", illustrated by a motion picture of the landing at the Azores of the first cable in which this new alloy was used. Permalloy, which greatly increases the speed of cable transmission, is a product of scientific research in the laboratories of the American Telephone and Telegraph System, now known as the Bell Telephone Laboratories, Inc.

Society Officers in Washington

On June 8, 1925, the President and Secretary passed a busy but pleasurable day in Washington, D. C. Working hours were spent largely in conferences on Society business, at the Geological Survey, the Office of the Chief of Engineers, and the Coast and Geodetic Survey. The evening was devoted to a large and delightful meeting of the Local Section at the Cosmos Club. During the evening, President Ridgway talked on various Society activities, such as Technical Divisions, Student Chapters, and Local Sections. Secretary Seabury's topic was more in the direction of finances and business affairs, together with interesting details of work at Headquarters. The meeting was an enjoyable one to both members and their guests.

Third Pan-American Scientific Congress

The Third Pan-American Scientific Congress which met at Lima, Peru, in December, 1924, was notable for the extent and breadth of its proceedings and the stimulation of international good-will among technical men. The Society was represented by W. J. Spalding, M. Am. Soc. C. E., to whom it is indebted for a full report.

The preceding Congress was held in Washington, D. C., in December, 1915. The sessions at Lima were held under nine separate Divisions, each having a President and a Secretary chosen from Peruvian professional, scientific, and international circles. The titles of these Divisions were: I, Anthropological and Historical Sciences; II, Physical Science and Mathematics; III,

Mineralogy, Metallurgy, Geology, Applied Chemistry; IV, Engineering; V, Medicine and Sanitation; VI, Biology and Agriculture; VII, Public and Private International Law; VIII, Economic and Political Science; and IX, Education. Division IV, Engineering, was further subdivided into: 1, Lines of Communication; 2, Irrigation; 3, Architecture and Construction; 4, River and Harbor Works; 5, Sanitation; 6, Industries; 7, Fortification; and 8, Electricity and Mechanics.

The extent of the meetings is indicated by the growth in the number of subjects presented, from 121 at the First Congress (Buenos Aires, 1898) to 890 subjects discussed at Lima during fifteen days. Adding those at the attendant Second Pan-American Conference of Women and of the First Pan-American Conference on Standard Weights and Measures would bring the total at Lima to about 1 200 subjects.

The Congress adopted resolutions commending to the various American Governments a variety of scientific endeavors, including studies of meteorology, geodesy, surveying, geology, hydrographic museums, tidal power, coal and mineral deposits, inter-continental Pan-American railroad, hydrology as affecting irrigation and power, standardization of construction materials, and development of national styles of art in construction.

The Congress also advocated the establishment of a Pan-American University at Panama. The next Congress, to be known as the Seventh American Scientific Congress, was fixed for 1929 at San José de Costa Rica.

Bibliographies on Athletic Stadia and Other Subjects

One of the most important functions of the Engineering Societies Library is the making of searches through its books and periodicals. Although most of its searches are made to the order of individuals who pay the expense of the work, the Library sometimes compiles bibliographies on its own initiative on subjects that are of current or widespread interest, and these bibliographies are sold at a nominal price. On account of the great interest taken in athletic fields in the last few years, the Library has compiled a list of forty-five annotated references on "Reinforced Concrete Grandstands and Stadia". This list includes practically all of the important articles published on this subject since 1920, and mimeographed copies of it may be obtained from the Library for \$1.00 each.

Members who want information on any particular topic are urged to communicate with the Library. More than 4 000 searches are on file, and it is possible that one or more of these will supply the desired information. If a search has not already been made on the desired subject the Library will make one. In this way the Library tries to make its resources of the greatest value to all members who care to take advantage of it. Inquiries should be addressed to the Engineering Societies Library, 29 West Thirty-ninth Street, New York, N. Y.

Sources of Society Officers

What parts of the country have contributed most to the Society in the matter of officers? The answer to this question is found in a list furnished

recently by the Secretary's office to a member who asked for dates and birthplaces. The appended table summarizes this information both as to the date of birth and the district of the Society in which the officers were born. Only Presidents and Vice-Presidents are considered, but even so the information is instructive.

BIRTHPLACES OF SOCIETY PRESIDENTS AND VICE-PRESIDENTS
BY DATES AND BY DISTRICTS.

Date of birth.	PLACE OF BIRTH.															Totals.
	District No.															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1801-10.....	1	2	2	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7
1811-20.....	3	1	.....	1	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	7
1821-30.....	4	4	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10
1831-40.....	3	7	2	3	2	4	.....	.....	1	.....	.....	.....	.....	.....	1	23
1841-50.....	7	4	3	2	.....	1	1	.....	.....	.....	.....	.....	.....	1	.....	19
1851-60.....	3	7	1	1	2	1	2	1	3	.....	.....	.....	2	1	.....	24
Since 1860..	3	8	.....	.....	.....	.....	1	4	.....	2	.....	.....	.....	1	1	15
Totals.....	24*	28	9	9	6	6	4	5	5	2	.....	.....	2	3	2	105

* Includes 17 born in foreign countries.

The tendency toward expansion in the number of districts represented with the later periods is only a normal one. This is but another way of showing the extension of national growth westward. The relative paucity of officers since 1860 is also without significance, since this particular period is at present decidedly incomplete as to eventual numbers, whereas the previous ones are doubtless complete.

It will be noticed that the distribution among districts is fairly uniform with two exceptions which are quite notable. Of the 24 officers credited to District No. 1, 17 were born in other lands, mostly Europe. This in itself is not so remarkable, especially considering that in the older days the technically trained engineer was of necessity European. For example, of the 13 officers from District No. 1 born during 1831-60, 9 were of foreign birth. The really remarkable thing is that this district, numbering at present about 20% of the Society membership, has been the birthplace of only 7 of these officers in all its history. It would appear that the engineers in District No. 1 have largely migrated to it.

Still another interesting District is No. 2. This has consistently given to the Society a large number of officers, more than 25% in fact—a really remarkable record showing an excellence of engineering training and probably a great interest in Society work.

Where were the Society Presidents and Vice-Presidents born? The answer seems to be "Everywhere; but mostly in New England and foreign countries". At least that is one answer; perhaps some members may draw other conclusions.

Papers Published Posthumously in This Issue

It is an unusual occurrence when an author dies before his paper is printed in *Proceedings*; that there should be two such instances in one issue is a matter of more than passing comment. Paul H. Norcross, M. Am. Soc. C. E., whose paper on "Municipal Water Supply Problems of Atlanta, Georgia", appears on page 969, was lost in the tragic Mississippi River accident near Memphis, Tenn., on May 8, 1925; and Julius Kruttschnitt, Chairman of the Southern Pacific Lines, whose address before the Local Sections of the four National Societies in New York, N. Y., is printed on page 1065, died in New York on June 15, 1925. Ordinarily, the only reward an author receives for his labor is the satisfaction of seeing his paper in print, but unfortunately even this is denied these two men. It is fitting, therefore, in justice to these authors and to the Society, to acknowledge the debt under which they have left the profession. They did their part in enriching the fund of knowledge; the Society was simply the vehicle whereby they performed this service. In reading these papers members may well pay silent respect to the authors who have missed their due recognition while they still lived.

Competitive Bridge Design for Drammen, Norway

The Municipality of Drammen, Norway, which is planning to construct a new bridge across the river that divides the town into the two parts, Bragernaes and Stromso, is inviting Norwegian and foreign engineers and architects to participate in a competition for the design of the new bridge. Three prizes of 10 000, 8 000, and 6 000 crowns are offered for the best designs. In addition, the Municipality reserves the right to purchase two other sets of designs entered in the competition, at a price of 3 000 crowns each. (The Norwegian crown, at current exchange, is worth between 17 and 18 cents.)

All designs must reach Stadsingenioren, Raadhusgaten 9, Drammen, Norway, before noon, October 1, 1925, and be marked "Forslag til ny bybro i Drammen". The metric system must be used on all plans.

Full information regarding the contest, including plans, photographs, and other descriptive matter in connection with this competitive effort are on file at the New York Office of the Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce, 734 Customhouse, New York, N. Y., where they may be inspected by those interested.

What Legislators Do Not Know About Engineers and Vice Versa

Engineers frequently complain that they are misunderstood by the ill-informed man on the street, but they seldom try any effective measures to rectify the condition. St. Louis engineers are an exception to this rule; they have tried with marked success to "sell themselves" to the city and State lawmakers by entertaining them at informal dinners. Politics was taboo; engineers did the talking. The officials were informed as to the engineer's problems, his public spirit, and his desire to be drafted for public service in technical fields. Judged by subsequent events, the result of these candid expressions justified the

attempt. St. Louis engineers feel they now have gained the understanding and sympathy of their representatives in government and may expect to be accorded recognition. Doubtless their guests made similarly favorable impressions. This successful attempt at mutual appreciation should set an example for all technical men whose real desire for the profession is advancement and service.

International Critical Tables

The Society is co-operating financially in the establishment and issuance of so-called "Critical Tables" of standards used throughout the world. As a preliminary to these compilations the International Research Council has had a tabulation of fundamental constants and conversion factors prepared, so that the final tables may be based on unified constants and thus be comparable for all related parts. The present issue of basic constants first lists atomic weights and abbreviations. The remainder is grouped under three heads: I, Accepted Constants, *viz.*, basic constants, derived constants, conventional constants, and experimental constants; II, Definition of Symbols and Dimensions of Quantities; and, III, Conversion Factors, including those of length, time, area, volume, mass, force, stress, work, power, density, velocity, temperature, and various electrical factors. Members needing any of this information are advised to communicate with W. M. Corse, National Research Council, B and 21st Streets, Washington, D. C.

President Ridgway Given Honorary Degree of Master of Arts

President Ridgway's many friends are gratified to learn that Harvard University at its Commencement, June 18, 1925, bestowed on him the Honorary Degree of Master of Arts. Mr. Ridgway is not a graduate of Harvard but is a great favorite with Harvard engineers and served as President of the Harvard Engineering Society during 1924. Following the Commencement exercises he addressed the Alumni, reviewing his forty years of public service. While noting an improvement in the personnel and ideals of civic life, he deplored the lack of greater interest on the part of the general public. As he received his honorary degree Mr. Ridgway was justly acclaimed as "a mighty engineer who controls the transit of a huge metropolis and has built tunnel and aqueduct under deep rivers."

American Bureau of Welding

At the Annual Meeting of the American Bureau of Welding, held on April 24, 1925, in the Engineering Societies Building, reports from all Sub-Committees were made showing good progress in the various fields of welding. Part of last year's work consisted of several tests on welded rail joints the results of which are of particular value to civil engineers. Included in the program were tensile tests, conductivity tests, micro-photographical examinations, experiments with a telemeter and an otheograph, and repeated impact tests by the U. S. Bureau of Standards using a machine designed and built by the Sub-Committee. Representing the Society on this active Bureau is L. H. Davis, M. Am. Soc. C. E.

The "Roebling" Bridge

There are many bridges to Brooklyn but only one "Brooklyn" Bridge; there are many names that associate themselves with the Brooklyn Bridge—names that have honored public life and engineering for a century—yet of all these names there is one that stands pre-eminent, that seems to permeate every fiber of the structure—the name of Roebling. The Brooklyn Bridge is a concept of the Roebling imagination. In its construction one Roebling succumbed and another gave his young manhood, his health, and almost his very life. Through twenty-six years the Roebblings followed its fortunes, first as a mere dream, then as a live possibility, and finally as a growing monument, through construction difficulties, political perfidy, impaired health, to glorious success. Is it any wonder then that the name of Roebling is welded to Brooklyn Bridge?

John A. Roebling may be termed the Father of the Suspension Bridge in America. This type of construction was indeed his pet. Even in his college days in Berlin he devoted his thesis to the suspension principle. Thereafter it was dormant but not forgotten—to be brought to life when occasion offered.

In reality Roebling's reputation as the greatest American bridge builder of his generation depends on only 18 years of work (1851-69), which included the devastating period of the Civil War, and mainly on but three structures, all of this type—one at Niagara, one at Cincinnati, and one over the East River in New York. His was not an easy path to success; many eminent engineers held contrary views and disputed his theories. Roebling contended for and demonstrated the value of his principle, first at the Niagara Railroad Suspension Bridge, that this type of structure was capable of sustaining heavy loads, and then at Cincinnati, that it was applicable to spans of more than 1000 ft. Even with these notable successes to point to, it was only with difficulty that he convinced financiers of the feasibility of the Brooklyn Bridge. The strength of his convictions would not admit defeat. These convictions won over his opponents and through discouragements, delays, and disasters they held his adherents to him. So it came about that the project was at last approved, by far the longest, largest, heaviest bridge of its day—the logical culmination of all of Roebling's previous work.

And thus it was that, his designs and estimates accepted and the work started auspiciously under his supervision as Chief Engineer, he was on the very threshold of fame when in July, 1869, while making a preliminary survey at the Brooklyn terminus, his foot was crushed, causing his death from lockjaw three weeks later.

The inspiring genius—Roebling—dead, Brooklyn Bridge also seemed destined to stop, an incompleated idea. He was more than Chief Engineer—he was practically the whole "engineering" of the contemplated bridge. His was the vision; in his mind's eye was the conception, the proportions, the erection, the details. He was the mainspring of all the incomplete mechanism. Better to take the dam from the reservoir, the engine from the power plant, than John A. Roebling from the Brooklyn Bridge. At least such were the first impressions; but these did not reckon with the Roebling reserves.

It would almost seem that Roebling had sensed the danger of his loss and had prepared a deputy who was indeed a part of himself, his own son, Col. Washington A. Roebling. Never was a more fortunate provision. The mantle of Elijah fell upon Elisha and the bridge project took on new life and younger enthusiasm for its fourteen year struggle. The name of Roebling assumed a stronger grip that subsequent trials could not shake.

The remainder of the narrative has become a classic among engineers. They know how the pneumatic caissons, among the first for large and deep foundations in America, presented untold problems; how disasters of fire and flooding were narrowly averted by heroic measures; how Colonel Roebling's almost superhuman devotion to these tasks, took its certain toll and prostrated him nearly to the point of death; how for ten years he never left his invalid's chair or saw the work but directed it through capable and loyal assistants from his home on Brooklyn Heights; how the notorious Tweed Ring spread its tentacles toward the prize and thus cast it under a shadow; how the unheard-of magnitude of construction and fabrication caused difficulties that were resolutely attacked and overcome; and how eventually the structure reared itself, a triumph—a triumph of engineering skill, a triumph of conviction, a triumph of tenacity.

And so the Brooklyn Bridge stands a refutation of every adverse criticism and a graceful tribute to its originator. Says a biographer of the older Roebling:

"Yes Brooklyn Bridge is beautiful. All the latent poetry of the mathematician—and in its highest reaches mathematics becomes divinest poetry; all the estheticism of the architect; all the musician's sensitiveness to harmony; all the mysticism of an idealist philosophy (John A. Roebling was a musician and a philosopher, too); whatever of faith, feeling, reverence John Roebling cherished in his heart, was here voiced like a ringing cry. As if conscious of his pending doom, his genius stands embodied in this form—an aspiration visible—a soul's bid for immortality."

Men to-day may admire the symmetry and grace of its beautiful lines, economists may dilate on its value as a means of communication between two great cities, officials may justly go in raptures over it as a public improvement, and engineers may rightly be proud of the new era in bridge building which it ushered in. But after all Brooklyn Bridge means more than this. It is more than the physical surmounting of a barrier between two important centers. It is the vindication of a great and new conception, the embodiment of an abiding faith. It is the personification of the Roebling Idea, fleshed in stone and steel.

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Local Sections*

Arizona.—By vote of the Board of Direction on April 20, 1925, the formation of the Arizona Section of the Society was approved. The officers are: President, G. E. P. Smith; Secretary-Treasurer, W. E. Dickinson.

Baltimore.—May 19, 1925. The following officers were elected: President, Herman F. Doleman; Vice-President, Ralph F. Proctor; Secretary-Treasurer, C. E. Keefer.

June 23, 1925. The meeting was addressed by Professor J. H. Gregory and Director Ezra B. Whitman who spoke on "The Chicago Sewerage Problem". The attendance was unusually large.

Central Ohio.—May 1, 1925. A report was made by the delegate to the Annual Convention of the Society at Cincinnati and an interesting and helpful discussion of matters presented at the Conference of Local Section Representatives followed. An Annual Prize was established, consisting of initiation fee and one year's dues as a Junior of the Society to be awarded to a member of the Ohio State University Student Chapter who obtained the highest records during the Junior and Senior years at the University.

Cincinnati.—April 13, 1925. Annual Meeting. The following officers were elected: President, Charles W. Kutz; Vice-President, Frank L. Raschig; Secretary-Treasurer, Clifford N. Miller. Councilman Charles O. Ross gave an informal talk on some of the local public utility problems. An extended discussion of the subject followed. Plans for the Annual Convention of the Society were also discussed. Attendance 11.

Colorado.—March 23, 1925. Mr. Robert Follansbee delivered a short address on "Stream Flow Characteristics" and was followed by Mr. John S. Means who spoke on "Standardized Specifications for Concrete and Reinforced Concrete". Mr. John A. Crook and Professor H. J. Gilkey participated in the discussion to which Mr. A. N. Miller added some interesting remarks. Professor C. L. Eckel discussed "Stresses in Structural Steel" and Professor W. C. Huntington spoke on the need for further investigation on the subject of stresses in floor-slabs. C. A. Betts, Office Engineer of the Moffat Tunnel Commission, delivered an address on "Progress in the Moffat Tunnel". O. T. Reedy, Senior Engineer, State Highway Department, spoke briefly of problems confronting the Department and Mr. Crook discussed the relative merits of steel and concrete for construction purposes strongly advocating the use of steel. Attendance 26.

April 13, 1925. Frank Shepard, Manager of the United States Mint, at Denver, addressed the Section on "Oil Shale Industry". Secretary George T. Seabury who was the guest of honor, gave an illuminating talk on the management of the business affairs of the Society and also a brief outline of the tentative program of the Summer Meeting to be held at Salt Lake City, Utah, in July. Attendance 33.

May 26, 1925. After a dinner and business meeting, Mr. Robert Follansbee presented an abstract of the paper on "Flood Flow Characteristics" by C. S.

* For list of Local Sections, Officers, Rules, etc., see 1925 Year Book, p. 48.

Jarvis, M. Am. Soc. C. E., and discussed the subject. Mr. Lyman E. Bishop spoke on "Denver's Flood Control Problem". A general discussion followed. Attendance 35.

June 22, 1925. The following officers were elected: President, Lyman E. Bishop; Vice-President, F. R. Dungan; Secretary-Treasurer, C. A. Betts. Mr. Fred C. Scobey, of the U. S. Department of Agriculture, sketched briefly the valuable work being done in connection with formulas for the flow of water in pipes of various types, and in open channels. Mr. M. D. Morgan, of the University of Illinois, and Mr. J. S. Bowman, of the Fargo Engineering Company, Jackson, Mich., explained the relative position of their Local Sections in the surrounding territory and the difficulties encountered by non-resident members when centralization is in one large city. Mr. Ivan E. Houk read a very interesting paper on "Cloudburst Phenomena". Attendance 18.

Connecticut.—May 1, 1925. Annual Meeting. President L. J. Carmalt, spoke informally on the activities of the Section during the past year, and Messrs. C. M. Saville and E. W. Bush reported on the Conference of Local Section Representatives and the Annual Convention of the Society held at Cincinnati, Ohio. The following officers were elected: President, L. J. Carmalt; Vice-President, C. F. Chase; Secretary-Treasurer, C. M. Blair. Attendance 20.

Detroit.—April 6, 1925. Mr. Louis E. Ayres was appointed official delegate to represent the Section at the Conference of Local Section Representatives at the Annual Convention of the Society with Mr. F. H. Stephenson as Alternate. After the business meeting, the remainder of the evening was devoted to a lively and interesting discussion of the program of the Conference. Attendance 12.

Duluth.—May 18, 1925. The following officers were elected to serve during the year 1925-26: President, Elbert H. Dresser; First Vice-President, H. C. Ash; Second Vice-President, Walter G. Zimmermann; Secretary, William E. Hawley; Treasurer, John Carson; Past-Presidents, T. F. McGilvray and O. H. Dickerson. These officers will serve as the Board of Directors of the Section.

Iowa.—April 6, 1925. The meeting which was held at Ames, Iowa, was opened at 2 P. M., with an inspection trip to various points of interest, including the Highway Commission Building and shops; city water-works and power station; city sewage disposal plant; the site of highway culvert load test; and Iowa State College and grounds. An informal dinner followed, at which Secretary George T. Seabury was the guest of honor. Secretary Seabury gave an interesting talk at the evening meeting, on the activities of the Society. An address was also given by Dean Anson Marston on "The Technical Report of the Committee on Sewage Disposal of the Engineering Board of Review, Sanitary District of Chicago". Attendance 45.

Kansas.—April 16, 1925. A dinner and meeting was held at Topeka, Kans., in honor of Secretary George T. Seabury, who addressed the Section on the work done at Society Headquarters and on the problems confronting the Society. Attendance 29.

June 22, 1925. Professor L. E. Conrad of the Kansas State Agricultural College reported on the Conference of Local Section Representatives which he attended as a delegate. A discussion ensued relative to Local Section affairs. Attendance 17.

Los Angeles.—February 11, 1925. After a dinner at the Vista del Arroyo Hotel in Pasadena, Calif., a business meeting was held. Mrs. Thomas Tyler Robinson then gave several vocal selections, accompanied by Mrs. Andrews. Mr. Robert Vint, Assistant Chief Landscape Engineer, United States National Park Service, addressed the meeting on "Our National Parks". This address was illustrated by motion pictures and at its conclusion the members and their friends adjourned to the ball room for dancing. Attendance 125.

April 8, 1925. After a dinner and business meeting the Section was addressed by Maj. Charles T. Leeds who spoke on the subject of "Greater Los Angeles-Long Beach Harbor". Major Leeds was followed by a member of his staff, Mr. F. B. Cole, who discussed a little more thoroughly, the railroad situation at the harbor. The subject called forth considerable discussion from those present. Attendance 109.

May 13, 1925. The meeting was held at the California Institute of Technology, Pasadena. The members made an inspection trip of the Institute buildings with members of the Student Chapter as guides. An interesting high voltage demonstration in the million-volt laboratory was given. A dinner followed, for which the Institute orchestra and quartette supplied music. Dr. Robert A. Millikan, Chairman of the Executive Council of the Institute, addressed the Section on "The Future of Science and Engineering in Southern California." Interesting demonstrations of recent developments in physics were presented by Professors E. C. Watson and Walter Whitney. Attendance 149.

Louisiana.—April 15, 1925. The following officers were elected: President, E. S. Bres; First Vice-President, W. T. Hogg; Second Vice-President, F. A. Muth; Secretary, A. B. Davis; Treasurer, C. N. Bott. Attendance 24.

New York.—April 15, 1925. "A Trip Through Northeastern Brazil, with a Visit to some of the Reclamation Works of the Brazilian Government", was shown by motion pictures and described by Mr. George Schobinger. Attendance 140.

May 20, 1925. Annual Meeting. The following officers were elected: President, George J. Ray; Vice President, John P. Hogan; Treasurer, Charles A. Mead; Directors, H. Malcolm Pirnie and J. Wright Taussig. "The Design of Stadia" was presented by Gavin Hadden, Civil Engineer, of New York, N. Y., with discussion from the contractor's viewpoint by R. F. Egelhof, of the Turner Construction Company, Buffalo, N. Y. A paper entitled "Color Effects Obtainable with Concretes" was presented by John J. Earley, Architectural Sculptor, of Washington, D. C., with discussion and motion pictures by N. C. Johnson, Consulting Engineer, of New York. Dr. Karl Imhoff, of Essen, Germany, spoke on "Disposal of Sewage by Activated Sludge". Attendance, 128.

Northeastern.—May 16, 1925. After a business meeting, at which several committees were appointed, Secretary Charles W. Banks gave a brief report of the Annual Convention of the Society at Cincinnati, Ohio, at which he was a Delegate to the Conference of Local Section Representatives. Director C. M. Spofford supplemented the report of the Secretary and a short interchange of questions and answers followed. Commander Robert B. Hilliard, C. C., U. S. N., spoke on "The Design of Naval Craft". Following his excellent address, Commander Hilliard answered many questions on the subject. Attendance 22.

Northwestern.—March 27, 1925. The program for the evening consisted of the presentation and discussion of legislation affecting the engineer and the Engineering Profession which is before the Minnesota Legislature. Mr. Walter H. Wheeler was scheduled to present the bill providing for the re-organization of State Government, but was unable to attend the meeting, and submitted a written report which was read by the Secretary. Mr. A. C. Godward discussed briefly the part the Legislative Committee of the Minnesota Federation of Architectural and Engineering Societies was taking in supporting and working for legislation affecting the Engineering Profession, as well as the outstanding features and the present status of a number of bills before the Legislature. The Registration Law was discussed extensively. Mr. G. H. Herrold gave an outline of the history of zoning and planning laws and regulations now in vogue in many parts of the country, the bills pending before the Legislature, and the Metropolitan District Plan. Attendance 27.

Oklahoma.—The officers of the Section are as follows: President, Victor H. Cochrane; First Vice-President, W. C. Burnham; Second Vice-President, W. E. Price; Secretary-Treasurer, V. V. Long.

Philadelphia.—April 6, 1925. After a dinner at the Engineers' Club at which 25 members and guests were present, an address was given by Paul P. Whitham, President of the Asia Development Company, Shanghai, China, on "An Engineer's Experiences in China,—The Old-New Country", illustrated by motion pictures. Attendance 50.

April 6, 1925. Board of Direction Meeting. A report of the Nominating Committee was presented. A statement regarding the visit of the Philadelphia delegation to Harrisburg, Pa., on March 17, 1925, to attend the hearing on the Bill to Repeal the Engineers' License Law, was read. The matter of holding a joint Field Day with other Technical Societies was discussed, and it was the sense of the meeting that the Section should participate. A committee of three was appointed to attend the meeting of the American Academy of Political and Social Science.

June 1, 1925. Annual Meeting at which President Robert Ridgway and Secretary George T. Seabury were the guests of honor. A tour was taken through the city to inspect the work on the new subway, the Philadelphia and Camden Bridge, and the sewage disposal plant at Wheatsheaf Lane. After a luncheon at the Union League, short addresses were made by Vice-President Richard L. Humphrey, Messrs. A. C. Shand, Chief Engineer, Pennsylvania

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Railroad; S. T. Wagner, Chief Engineer, Philadelphia and Reading Railroad, and other prominent engineers. After a dinner at the Engineers' Club, the business meeting was held. Charles H. Stevens, President of the Section, gave an address, introducing President-elect Henry J. Sherman, who outlined plans for the further development of the Section. President Ridgway spoke on the subway work in New York, N. Y., illustrating his remarks by lantern slides. Addresses were also made by Colonel J. R. Slattery and Secretary Seabury. Attendance 75.

Portland, (Ore.).—March 20, 1925. It was decided to present the initiation fee and the first year's dues as a Junior in the Society as a prize to the first three winners of the Prize Essay Contest. Director G. C. Mason presented the report of the Traffic Committee, which was very comprehensive and called forth considerable discussion. Attendance 32.

Providence.—May 26, 1925. Annual Meeting. The following officers were elected: Chairman, George H. Henderson; Vice-Chairman, Howard W. Congdon; Secretary-Treasurer, Robert L. Bowen. Additional members of the Executive Committee are Messrs. William W. Peabody and George A. Carpenter.

Sacramento.—April 14, 1925. At a joint meeting with the Sacramento Chapter of the American Association of Engineers, State Engineer W. F. McClure read a paper on "The Colorado River Problem and the Agreement Concerning Its Regulation Between the Seven States within Which Its Watershed Lies". Arthur P. Davis, Past-President of the Society, discussed the same subject. Attendance 88.

May 2, 1925. Fifteen members of the Section and twenty-nine guests left Sacramento by automobile for an inspection of the Exchequer Dam on the Merced River. La Grange Dam, on the Tuolumne River, the highest overflow dam in the United States, and the Don Pedro Dam, also on the same river and the highest above stream bed in the world, were visited en route. Dinner was served at El Capitan Hotel in Merced, guests being present from San Francisco and the Upper San Joaquin Valley. Addresses were made by Past-President Arthur P. Davis and Mr. Ross White. On Sunday morning the party drove to Pleasant Valley, where the Yosemite Valley Railroad Bridge across the Exchequer Reservoir was inspected. The concrete piers of this bridge will be 225 ft. in height. Later, the Exchequer Dam, which will be 325 ft. high, was visited. The return trip was made Sunday evening.

May 5, 1925. Mr. Paul Bailey, Chief of the Division of Irrigation and Engineering of the State Department of Public Works, addressed a joint meeting of the Section and the American Association of Engineers on "Future Use of Water as Compared to Past Use in California". Attendance 40.

San Diego.—June 19, 1925. In the afternoon, Secretary George T. Seabury as the guest of the Section viewed some of the construction works of the Navy in San Diego and in the evening a dinner was held, at which 16 members were present.

June 20, 1925. An all-day trip was made through the surrounding country including visits to two dams. The President of the Section for the year is B. B. Boyd and the Vice-President, Commander De Witt C. Webb.

Spokane.—April 10, 1925. A joint meeting of mining and civil engineers with the mining engineers at the University of Idaho was suggested. It was also proposed to send a letter congratulating the Associated Engineers of Boise, Idaho, on their organization. Attendance 15.

June 12, 1925. A communication from Secretary George T. Seabury relative to his visit on July 2, 1925, was presented, and a committee appointed to arrange for his entertainment. Letters were read relative to the Section offering a prize to a college consisting of a Junior Membership in the Society and to the recommended use of the terms, "engineer" and "engineman". Other business of local interest was transacted. Attendance 18.

Syracuse.—April 20, 1925. Annual Meeting. The following officers were elected: President, Henry C. Allen; First Vice-President, Guy Moulton; Second Vice-President, George D. Williams; Director, Daniel B. O'Brien; Secretary-Treasurer, Nelson F. Pitts, Jr.

Utah.—May 25, 1925. The Engineering Council of Utah with which the Section is affiliated held its Annual Dinner at the Hotel Utah, Salt Lake City. The speakers were as follows: George M. Bacon, President of the Engineering Council of Utah; Markham Cheever, General Superintendent and Chief Engineer, Utah Power and Light Company; W. Mont Ferry, Vice-President and Managing Director, Silver King Coalition Mines Company; and Dr. Farley Osgood, President, American Institute of Electrical Engineers.

June 6, 1925. The meeting was held at the Hermitage Hotel, Ogden Canyon, Utah, and was preceded by an informal dinner. Plans for the Summer Meeting of the Society at Salt Lake City were arranged. Attendance 27.

Virginia.—At a recent meeting of the Section the following officers were elected: President, W. P. Wiltsee; Secretary, Albert C. Dunn.

Student Chapters*

Rice Institute.—The Chapter has had regular meetings during the past year and some interesting speakers including Director J. M. Howe, Consulting Engineer, Houston, Tex., who gave an address on the "History and Aims of the American Society of Civil Engineers", and J. C. McVea, City Engineer of Houston, who spoke on "Municipal Water Supply".

State College of Washington.—The following officers were elected for the coming semester: President, W. M. Bloom; Vice-President, R. C. Smith; Secretary-Treasurer, C. A. Tiffany; Member-at-Large, Don Adams. Meetings are held monthly when business is transacted and technical matters are discussed. The Student Chapters of the Founder Societies at the College have formed the Associated Engineers. Meetings of this organization are held on Thursday of each week, the various societies preparing the program in turn.

* For list of Student Chapters, Officers, etc., see 1925 Year Book, p. 54.

University of Minnesota.—May 27, 1925. This was a joint meeting of the Chapter with the Northwestern Section of the Society. The following Chapter officers were elected: President, T. P. Young; Vice-President, C. R. Liese; Secretary, P. C. Fenton; Treasurer, B. A. Juell. Messrs. F. E. Nichol and J. H. Swanberg were awarded the first and second prizes, respectively, in the Senior Group by the Northwestern Section, and Mr. T. P. Young received the Junior Prize. After the business of the Section had been transacted, Dr. G. P. Conger of the University of Minnesota gave an interesting talk on "The World of the Engineer". Attendance 65.

University of Washington.—November 15, 1924. A field trip was organized to the Lake Cushman Hydro-Electric Power Development Project. Guides were provided to escort the visitors over the work and the excursion proved to be interesting and instructive. Attendance 25.

Banquets were held in January and March, 1925, at which matters of interest in engineering were discussed. During the winter a very successful drive for members was instituted.

April 22, 1925. A dinner was held at which the Designing Engineer of the Baker River Hydro-Electric Plant addressed the Chapter.

April 25, 1925. An inspection trip was made to the Baker River Hydro-Electric Plant and to the plant of the Superior Portland Cement Company. Attendance 30.

In addition to its other activities the Chapter has a baseball team playing in the Engineering League, as well as a Standing Committee on Employment which is at work in an effort to establish a closer connection between engineering firms of Seattle and the Chapter, with a view to placing the student members in engineering work during the summer.

Virginia Polytechnic Institute.—January 13, 1925. Regular meeting. Mr. H. F. Gilpin addressed the Chapter on "The Maintenance of Asphaltic Pavements."

February 9, 1925. Regular meeting. Col. H. C. Boyden spoke on "Concrete and Its Uses."

February 20, 1925. Mr. W. E. Rosengarten gave an address on "Asphalt Road Construction."

Several meetings have been held during the spring term at which interesting papers on engineering subjects were read by student members.

Engineering Societies Library

The services of the Engineering Societies Library are available to all members who wish searches, copies, translations, etc., or advice on technical literature. A collection of modern books is also available for loan to members in North America, at moderate rentals. Correspondence should be addressed to the Director, Engineering Societies Library, 29 West 39th Street, New York, N. Y., who will gladly give information concerning the charges for the various kinds of work. A more comprehensive statement in regard to this matter will be found on pages 71 and 72 of the Year Book for 1925.

Book Notices*

(April 1 to June 30, 1925)

America's Greatest Dam, Muscle Shoals, Ala. By William Benjamin West. Second Edition. N. Y., Frank E. Cooper, 1925. 62 pp., illus., 8 x 11 in., cloth. \$2.00.

This is a popular review of the Muscle Shoals Project, with descriptions of the two nitrate plants and of the Wilson Dam, completely illustrated.

Art of Town Planning. By Henry Vaughan Lanchester. (Universal Art Series.) N. Y., Charles Scribner's Sons, 1925. 244 pp., illus., plans, 9 x 6 in., cloth. \$7.50.

The author discusses town planning as an art in which a knowledge of architecture, arboriculture, horticulture, hygiene, economics, and allied subjects must be combined and utilized. He traces the evolution of town planning and indicates the lines along which modern ideas are developing.

Bituminous Substances. By Percy Edwin Spielmann. Lond., Ernest Benn, Ltd., 1925. 206 pp., illus., diagrams, tab., 9 x 6 in., cloth. 15s.

The author has collated information that has appeared during the past fifteen years, covering the chemistry of bitumens and correlating their chemical composition with their physical behavior and properties. He discusses the composition, origin, and properties of the bitumens, the effects of heat, aging, and solvents, and the physical and chemical tests.

Construction of Wells and Bore-Holes for Water Supply. By J. E. Dumbleton. Lond., Crosby Lockwood & Son, 1925. 134 pp., illus., 9 x 5 in., cloth. 10s. 6d.

This concise English work discusses the theory of springs, the yield of wells, construction of wells, well-drilling, pumps, and the properties and methods of analysis of water.

Elements of Railway Economics. By Sir William M. Acworth. New Edition, Revised and Enlarged. Oxford, Clarendon Press, 1924. 216 pp., 7 x 5 in., cloth. \$1.20. (Gift of Oxford University Press. American Branch.)

The present revised edition has been brought up to date and the illustrations taken from recent experience. Chapters have been added, dealing with passenger traffic and with the changes during and since the World War, all as applied to conditions in Great Britain.

Field Engineering. By William H. Searles. Nineteenth Edition, Revised and Enlarged, by H. C. Ives. N. Y., John Wiley & Sons, 1925. 2 v. in 1, diagrams, tab., 7 x 4 in., fabrikoid. \$4.00.

This pocket-book, in use for forty-five years and now in its Nineteenth Edition, has been extensively revised by re-arrangement, omissions, and many additions. It still remains, however, small enough to be carried conveniently in the pocket.

* The statements made in these notices are taken from the books themselves, and this Society is not responsible for them. Unless otherwise specified, the books in this list have been donated by publishers.

Linienführung. By Erich Giese, Otto Blum, and Kurt Risch. (Handbibliothek für Bauingenieure, T. 2, Bd. 2.) Berlin, Julius Springer, 1925. 435 pp., illus., diagrams, 10 x 7 in., boards. 21 g. m.

This comprehensive work on railroad location and construction considers both economic and engineering problems. It is intended as a text and for reference.

Personnel Management on the Railroads. By Policyholders' Service Bureau, Metropolitan Life Insurance Company. N. Y., Simmons-Boardman Pub. Co., 1925. 227 pp., illus., 8 x 5 in., cloth. \$3.00.

This study is concerned with reconciling the antagonisms between railroad labor and management. The material was gathered from printed reviews, from surveys of methods used by eight railroads in different sections of the country, and from experiments on the Baltimore and Ohio and the Rock Island Railroads. The report indicates the outstanding elements of the personnel problem and suggests measures for improving conditions.

Port Development. By Roy S. MacElwee. N. Y., McGraw-Hill Book Co., 1925. 456 pp., illus., maps, tab., 9 x 6 in., cloth. \$5.00.

"Port Development" is concerned primarily with questions of government, administration, traffic, and solicitation, rather than with mere physical terminal facilities. It discusses the physical features of ports and the advantages of location, analyzes rates, costs, and services, and treats extensively of free ports.

Practical Accounting and Cost-keeping for Contractors. By Frank R. Walker. Chic., Frank R. Walker Company, 1924. 169 pp., illus., 12 x 9 in., cloth. \$2.50.

Methods are given which are simple enough to be used by small contractors and yet can be adapted to business on a large scale.

Practical Descriptive Geometry. By William Griswold Smith. Third Edition, Revised and Enlarged. N. Y., McGraw-Hill Book Co., 1925. 281 pp., illus., 9 x 6 in., cloth. \$2.50.

The author aims to present the subject simply and progressively, emphasizing the relation between descriptive geometry and practical drafting. A large number of exercises have been provided.

Preparation of Scientific and Technical Papers. By Sam F. Trelease and Emma S. Yule. Balt., Williams & Wilkins Co., 1925. 113 pp., 8 x 5 in., cloth. \$1.50.

This manual of style for those who are writing on technical subjects discusses such matters as the collection of data, arrangement of subject matter, preparation of manuscript, proof-reading, illustrations, etc. It includes practical information on grammar, style, footnotes, etc., all presented with conciseness and clearness.

Principles of Public Health Engineering. By Earle B. Phelps. N. Y., Macmillan Co., 1925. 265 pp., illus., tab., 9 x 6 in., cloth. \$3.00.

This book is intended to furnish a public health background to the conventional course in sanitary engineering and an engineering viewpoint to the medically trained man doing public health work. It treats of principles of atmospheric pollution; ventilation of buildings; municipal water supply; sewerage; pasteurization of milk; lighting, etc.

Reinforced Concrete Bridges. By W. L. Scott. Lond., Crosby Lockwood & Son, 1925. 207 pp., illus., diagrams, tab., 10 x 6 in., cloth. 42s.

This English volume is intended to amplify, rather than displace, existing works, to include all that is essential to guide an engineer in the adoption and the design of a bridge to suit any ordinary case, and to illustrate the best and most recent practice.

Resistance of Materials. By Fred B. Seely. N. Y., John Wiley & Sons, 1925. 442 pp., diagrams, tab., 9 x 6 in., cloth. \$3.75.

The first, and longer, part of this textbook treats chiefly of the application of the principles of Analytical Mechanics and of the experimental laws of structural materials to the analysis of the members used in structures and machines. The second part treats of the force-resisting properties of engineering materials.

Rigid Airship; a Treatise on the Design and Performance. By E. H. Lewitt. Lond. & N. Y., Isaac Pitman & Sons, 1925. 283 pp., illus., pl., diagrams, 9 x 6 in., cloth. \$8.50

This is the first complete English work on the subject, the author asserts, and is intended for designers and students of aeronautics. The field is restricted to structural design and performance; engines and machinery are not discussed.

Street Traffic Control. By Miller McClintock. N. Y., McGraw-Hill Book Co., 1925. 233 pp., illus., 9 x 6 in., cloth. \$3.00.

The author analyzes the causes of traffic difficulties in city streets, with their accompanying accidents and congestion, and summarizes the experiences of the larger American cities in coping with them.

Strength of Materials. By Edward R. Maurer and Morton O. Withey. N. Y., John Wiley & Sons, 1925. 382 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$3.50.

This book covers the ground usually included in undergraduate courses. Particular attention has been given to definitions, demonstrations, proofs, solved illustrative examples, and problems.

Der Talsperrenbau; Band 1. By P. Ziegler. Third Edition. Berlin, Wilhelm Ernst & Sohn, 1925. 247 pp., illus., diagrams, tab., 10 x 7 in., paper, 24 g. m.

This systematic treatise on earth and rock-fill dams discusses the underlying theory and the various cases of failure, with detailed descriptions of typical dams in various countries.

Vauban, Builder of Fortresses. By Daniel Halévy. N. Y., Lincoln Macveagh, The Dial Press, 1925. 256 pp., port., 9 x 6 in., cloth. \$2.75.

As a vivid story of the most celebrated of military engineers this volume traces Vauban's whole career, during which he built 160 fortresses and conducted 40 sieges. It does not discuss the technical side of Vauban's work, but emphasizes his important share in the unification and defense of France.

Verkehr und Betrieb der Eisenbahnen. By Otto Blum, G. Jacobi, und Kurt Risch. (Handbibliothek für Bauingenieure, T. 2, Bd. 8.) Berlin, Julius Springer, 1925. 418 pp., 10 x 7 in., boards. 21 g. m.

This is one volume of a series intended to form a reference library for the practicing civil engineer. The first section discusses the relations of railroads to national prosperity, and rates. Section 2, on operation, discusses time-tables and train service. Section 3 deals with railroad organization, particularly as affected by legislation in Germany.

Water Supply of Buildings and Rural Communities. By Walter S. L. Cleverdon. N. Y., D. Van Nostrand Co., 1925. 186 pp., illus., diagrams, tab., 8 x 5 in., cloth. \$2.50.

This book covers in detail the necessary features of small water-supply systems, the various subjects being taken up in their practical order and discussed simply yet completely.

Additions to the Reading Room

Public Utilities in Modern Life, Selected Speeches (1914-23). By Samuel Insull. Edited with an Introduction by William Eugene Keily. 426 pp., illus., diagrams, 5½ x 10 in., cloth. (Gift of the Author.)

It is stated in the Introduction that if this book had no other value it would be worth while as a manual of modern public utility practice for the young, or even for the older, employee. It contains practical and helpful advice from one who has been "through the mill" and has achieved an experience that enables him to speak with authority.

Regulation of Rivers Without Embankments as Applied in the Training Works at the Headwaters of the Rangoon River, Burma. By F. A. Leete. Assisted by G. C. Cheyne. Lond., Crosby Lockwood and Son; N. Y., D. Van Nostrand Company, 1924. 122 pp., illus., maps, 11 x 7½ in., cloth. \$12.00.

This book is divided into ten chapters. The first is introductory, and gives a summary of (1) the problem presented by the Myitmakha River and its feeders; (2) the earlier efforts to control the streams; and (3) the final solution of the problem as worked out in the past eight years. Chapter VII, in which training without embankments is more particularly described, may well be read after Chapter I, as it sets forth the whole argument for the title of the book. The other chapters consist chiefly of an analysis of the facts bearing on the problem of control. Discussion of a technical nature has been avoided as far as possible.

August, 1925

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Abbreviate

Am. C. Engr.
A. I. E. E.
A. R. E.A. S. T. M.
Am. Soc.
Am. Soc. N.Am. W. W.
Am. Wood
Ann. P. et
Ann. T. P.
Assoc. Ing.Bost. Soc.
Can. Engr.
Cornell C.Dock & Har
Eng.
Eng. & Co
Eng. Inst.
Eng. N. R.
Engrs. Soc.
Engrs. Soc.
Engrs. & EGen. Civ..
Gesund. In
Inst. C. E.
Inst. Mun.Int. Ry. Co
Land. Arch
Mech. EngMil. Engr.
Min. & MMun. & Co
N. E. W. Y
N. Y. R. F
Oest. Ing.Power ...
Rev. Gen..
Ry. Age..
Ry. Eng..
Ry. Rev..
Schw. Bauz
Sci. Am..
Soc. Ing. CVer. deu.
West. Ry.
West. Soc.
Zeit. Bau.
Z. d. Bau

* Y

Current Civil Engineering Literature

Key to Abbreviated References to Publications Indexed*

Abbreviated References.	Publication.	Place.
Am. C. Inst.....	American Concrete Institute, Proceedings (Y.)	Detroit
A. I. E. E.....	American Institute of Electrical Engineers Journal (M.)	New York
A. R. E. A.....	American Railway Engineering Association, Proceedings (Y.)	Chicago
A. S. T. M.....	American Society for Testing Materials, Proceedings (Y.)	Philadelphia
Am. Soc. C. E.....	American Society of Civil Engineers, Proceedings (M.)	New York
Am. Soc. Mun. Impvts.....	American Society for Municipal Improvements, Proceedings (Y.)	New York
Am. W. W. Assoc.....	American Water Works Association, Journal (Bi-M.)	Baltimore
Am. Wood Pres. Assoc.....	American Wood Preservers Association, Proceedings (Y.)	Chicago
Ann. P. et C.....	Annales des Ponts et Chaussées (Bi-M.)	Paris
Ann. T. P. Belg.....	Annales des Travaux Publics de Belgique (Bi-M.)	Brussels
Assoc. Ing. Gand.....	Annales de l'Association des Ingénieurs sortis des Ecoles Spéciales de Gand (Q.)	Ghent
Bost. Soc. C. E.....	Boston Society of Civil Engineers, Journal (M.)	Boston
Can. Engr.....	Canadian Engineer (W.)	Toronto
Cornell C. E.....	Cornell Civil Engineer (M.)	Ithaca
Dock & Harbour.....	Dock and Harbour Authority (M.)	London
Eng.....	Engineering (W.)	London
Eng. & Contr.....	Engineering and Contracting (W.)	Chicago
Eng. Inst. Can.....	Engineering Institute of Canada, Journal (M.)	Montreal
Eng. N. R.....	Engineering News-Record (W.)	New York
Engrs. Soc. Pa.....	Engineers' Society of Pennsylvania, Journal (M.)	Harrisburg
Engrs. Soc. W. Pa.....	Engineers' Society of Western Pennsylvania, Journal (M.)	Pittsburgh
Engr.....	Engineer (W.)	London
Engrs. & Eng.....	Engineers and Engineering, Engineers' Club of Philadelphia (M.)	Philadelphia
Gen. Civ.....	Le Génie Civil (W.)	Paris
Gesund. Ing.....	Gesundheits Ingenieur (W.)	Munich
Inst. C. E.....	Institution of Civil Engineers Minutes of Proceedings (Q.)	London
Inst. Mun. & Co. Engrs.....	Institution of Municipal and County Engineers, Journal (W.)	London
Int. Ry. Cong. Assoc.....	International Railway Congress Association, Bulletin (M.)	Brussels
Land. Arch.....	Landscape Architecture (M.)	Harrisburg
Mech. Eng.....	Mechanical Engineering (M.) Journal of the American Society of Mechanical Engineers	New York
Mil. Engr.....	Military Engineer (M.)	Washington
Min. & Metal.....	Mining and Metallurgy (M.) American Institute of Mining Engineers	New York
Mun. & Co. Eng.....	Municipal and County Engineering (M.)	Indianapolis
N. E. W. W. Assoc.....	New England Water Works Association, Journal (M.)	Boston
N. Y. R. R. Club.....	New York Railroad Club, Proceedings (M.)	Brooklyn
Oest. Ing. Arch. Ver.....	Oesterreichischer Ingenieur und Architekten Verein, Zeitschrift (F.)	Vienna
Power.....	Power (W.)	New York
Rev. Gen.....	Revue Générale des Chemins de Fer (M.)	Paris
Ry. Age.....	Railway Age (W.)	New York
Ry. Eng. & Main.....	Railway Engineering and Maintenance (M.)	Chicago
Ry. Rev.....	Railway Review (W.)	Chicago
Schw. Bauz.....	Schweizerische Bauzeitung (W.)	Zurich
Sci. Am.....	Scientific American (M.)	New York
Soc. Ing. Civ. Fr.....	Société des Ingénieurs Civils de France, Mémoires et Comptes Rendus (Q.)	Paris
Ver. deu. Ing.....	Verein deutscher Ingenieure, Zeitschrift (W.)	Berlin
West. Ry. Club.....	Western Railway Club, Proceedings (M.)	Chicago
West. Soc. Engrs.....	Western Society of Engineers, Journal (M.)	Chicago
Zelt. Bau.....	Zeitschrift für Bauwesen (Q.)	Berlin
Z. d. Bauver.....	Zentralblatt der Bauverwaltung (W.)	Berlin

* Y = Yearly; Q = Quarterly; M = Monthly; F = Fortnightly; W = Weekly.

A. Applied Sciences

a. Processes of Calculation

1. Mechanical Processes

Ein logarithmischer Rechenschieber für Kanalisation und Wasserversorgung.* (A Logarithmic Slide Rule for Sewerage and Water Supply.) H. Bock. Schw. Bauz. March 7, '25.

2. Graphical and Nomographical Processes

Arithmetic Solution of Hydraulic Problems.* Robert W. Angus. (Paper read before Int. Math. Cong.) Can. Engr. Apr. 14, '25.

Stresses in Continuous Beams Determined Graphically.* I. Duberstein. Eng. N. R. May 28, '25.

3. Stresses and Strains

Should We Consider Secondary Stresses.* Edward Godfrey. Can. Engr. May 19, '25.

Ueber das Wesen der plastischen Verformung.* (The Character of Plastic Deformation.) Heinrich Hencky. Ver. deu. Ing. Serial beginning May 16, '25.

B. Applied Mechanics

a. Mechanics of Solids (Strength of Materials)

1. Processes of Measurement

Essais Officiels sur la Résistance des Chaines Executés en Hollande.* (Official Tests of the Strength of Chains Carried out in Holland.) Gen. Civ. Apr. 18, '25.

Eigenschwingungen mit periodisch veränderlicher Elastizität. (Natural Vibrations with Periodically Varying Elasticity.) E. Meissner. Schw. Bauz. May 16, '25.

3. Jointed Systems

Constructions Hyperstatiques à Éléments Droits.* (Hyperstatic Constructions with Straight Elements.) P. Thomas. Gen. Civ. May 2, '25.

6. Heterogeneous Solids (Reinforced Materials)

Calcul Graphique du Béton Armé.* (Graphical Calculation of Reinforced Concrete.) H. Masson. Ann. P. et C. Jan., '25.

Calcul Rapide des Pièces en Béton Armé à Compression et Flexion Composées.* (Rapid Calculation of Reinforced Concrete Parts Subjected to Compound Compression and Flexure.) G. Prudon. Gen. Civ. Mar. 21, '25.

7. Pulverulent Masses (Earth Pressure)

Bearing Area and Supporting Value of Soil.* A. T. Goldbeck and M. J. Bussard. (From Public Roads.) Eng. & Contr. Apr. 1, '25.

Progress Report of the Special Committee to Codify Present Practice on the Bearing Value of Soils for Foundations, Etc.* Am. Soc. C. E. May, '25.

b. Hydraulics

1. Processes of Measurement

The Measurement of the Discharge of the Nile through the Sluices of the Assuan Dam.* Harold Edwin Hurst and David Alexander Fraser Watt. Inst. C. E., Vol. 218, 1923-24, Pt. 2.

The Similarity of Motion of Water through Sluices and through Scale Models: Experiments with Models of Sluices of the Assuan Dam.* Harold Edwin Hurst and David Alexander Fraser Watt. Inst. C. E., Vol. 218, 1923-24, Pt. 2.

Ueber Geschwindigkeitsreduktionen bei Wassermessungen.* (Velocity Reductions in Water Measurements.) Wilhelm Reitz. Schw. Bauz. May 9, '25.

2. Physical Hydraulics

Mechanical Problems of Hydraulic-Turbine Design.* William Monroe White. Mech. Eng. June, '25.

World's Record High-Head Reaction-Type Hydraulic Turbine.* C. P. Dunn. Power June 2, '25.

Determining the Energy Lost in the Hydraulic Jump.* J. C. Stevens. Eng. N. R. June 4, '25.

3. Industrial Hydraulics

Overcoming Ice Difficulties at the Holtwood Power Plant.* H. W. Lowy. Bost. Soc. C. E. Mar., '25.

The Chancy-Poungny Hydro-electric Power Station.* Engr. Mar. 20, '25.

Quinze River Hydro-Power Development.* Can. Engr. Mar. 24, '25.

Large Power Development, Stave Falls.* Can. Engr. Mar. 31, '25.

Structural Design Features of a Hydro-Electric Development.* William D. Henderson. Bost. Soc. C. E. Apr., '25.

Preliminary Water Power Investigations. A. M. Beale. (Paper read before Assoc. Dominion Land Surveyors.) Can. Engr. Apr. 7, '25.

Large Plate Steel Spiral Turbine Casings.* Can. Engr. Apr. 7, '25.

Grand Falls Power Development. Can. Engr. Apr. 28, '25.

Sherman Island Dam and Power House.* Discussion: Eugene E. Halmos, J. C. Meade, George A. Orrok, Lazarus White, Thaddeus Merriman, Henry Goldmark, Byron E. White, F. E. Jakobsen, Charles W. Comstock, and Walter H. Wheeler. Am. Soc. C. E. May, '25.

Hydro-Electric Power as a By-Product of Agricultural Storage. Discussion. L. T. Gutz. Am. Soc. C. E. May, '25.

Water Pumped in Summer to Develop Power in Winter.* Power May 5, '25.

Dam and Filter Plant at Smith's Falls.* E. H. Darling. Can. Engr. May 5, '25.

Low-Head Power Plant Designed for Typical Mid-West River.* E. L. Chandler. Eng. N. R. May 7, '25.

Wilson Dam of Muscles Shoals Project.* Eng. & Contr. May 20, '25.

Newfoundland Power Development.* A. A. Paoli and F. A. McLean. (From Compression Air Magazine.) Can. Engr. May 26, '25.

Power Possibilities at Muscle Shoals, Alabama.* Samuel S. Wyer. A. I. E. E. June, '25.

- The Oak Grove High-Head-Turbine Development of the Portland Electric Power Company.* Ely C. Hutchinson. Mech. Eng. June, '25.
- Hydro Plants in Lake St. John District.* G. B. Snow. Can. Engr. June 2, '25.
- Dam and Power-House Reconstruction at Marinette, Wis.* D. Graham Moon. Eng. N. R. June 11, '25.
- L'aménagement de la Chute des Sept-Lacs dans le Massif de Belledune, Isère.* (Selection of the Power Head for Sept-Lacs in the Belledune Mountains, Isère.) Gen. Civ. Apr. 25, '25.
- Usine Hydro-électrique de Belleville, Savoie. Station de Pompage Relevant l'Eau dans le Lac de la Grotte.* (Hydro-electric Plant at Belleville, Savoy. Pumping Station Raising the Water in Lake Grotte.) Ch. Dantin. Gen. Civ. May 9, '25.
- Die neuere Entwicklung des österreichischen Wasserkraftmaschinenbaues.* (Newer Development of Austrian Hydraulic Motor Building.) Hans Kreitner. Oest. Ing. Arch. Ver. March 6, '25.
- Ein französisches Wasserkraftwerk mit neuartiger Zuleitung.* (A French Water Power Plant with a New Type of Supply Penstock.) Eger. Z. d. Bauver. Mar. 11, '25.
- Die experimentelle Forschung im Wasserkraftfach.* (Experimental Research in Water Power Engineering.) D. Thoma. Ver. deu. Ing. March 14, '25.
- Einflüsse auf den Wirkungsgrad von Wasserturbinen.* (Things Affecting the Efficiency of Hydraulic Turbines.) Franz Stauffer. Ver. deu. Ing. Mar. 28, '25.
- Berechnung von Kreiselpumpen.* (Design of Centrifugal Pumps.) Bruno Eck. Ver. deu. Ing. Apr. 11, '25.
- Verteilung der elektrischen Energie mit besonderer Berücksichtigung des Bayernwerkes.* (Distribution of Electrical Power with Special Reference to Bavarian Plants.) A. Menge. Ver. deu. Ing. May 2, '25.
- Eine neue Stromturbine.* (A new Turbine Current Motor.) Franz Magyar. Oest. Ing. Arch. Ver. May 15, '25.
- Einfluss des Auftreffwinkels bei Becherturbinen.* (Influence of the Impact Angle in Pelton Wheels.) Heinz Lüdewig. Ver. deu. Ing. May 23, '25.
- Ueber Ausgleichbecken mit oberhalb liegendem Ueberfall bei Wasserkraftanlagen.* (On Equalizing Reservoirs with an Overfall above Them, for Water Power Plants.) A. Müller. Schw. Bauz. May 23, '25.

c. Pneumatics

2. Physical Pneumatics

- Les Théories de l'Aérodynamique Moderne sur l'Effet Magnus et les Voiles Tournantes Flettner.* (Modern Aerodynamic Theories on the Magnus Effect and the Flettner Revolving Cylinders.) G. Delanghe. Gen. Civ. Ser. begin. May 2, '25.

C. Materials of Construction and General Processes

a. Lime, Cement, Mortar, Concrete, Brick, Bitumen, Timber, Gravel, etc.

- Practical Methods for the Design of Concrete Mixtures.* T. P. Watson. (Paper read before Phil. Section, Am. Soc. C. E.) Engrs. & Eng. Mar., '25.
- The Effect of Moisture on Concrete.* W. K. Hatt. (Paper read before Highway Div.) Am. Soc. C. E. May, '25.
- Fire-Banks for Oil Storage.* H. H. Hall. Am. Soc. C. E. May, '25.
- Aluminate Cement.* Roger L. Morrison. (Paper read before Univ. of Michigan.) Eng. & Contr. May 6, '25.
- Making Uniform Concrete by Inundating Sand.* R. L. Bertin. Eng. N. R. May 7, '25.
- Practical Application of Field Control of Concrete.* T. P. Watson. Ry. Rev. May 9, '25.
- New Theory of Asphalt Mixtures.* Moray F. MacNaughton. (Paper read before Univ. of Michigan.) Can. Engr. Serial beginning May 12, '25.
- Scientific Control of Concrete Economy.* Elwyn E. Seelye. Eng. N. R. May 14, '25.
- Fundamental Factors in Concrete Quality Control. R. B. Young. Eng. N. R. June 4, '25.
- Suggests One-Day Strength Test for Concrete Aggregate.* S. B. Slack and J. E. Boyd. Eng. N. R. June 18, '25.
- Der hochwertige Spezialportlandzement und Beton.* (High Grade special Portland Cement and Concrete.) M. Spindel. Oest. Ing. Arch. Ver. Serial beginning March 6, '25.
- Versuche mit hochwertige Sonderportlandzementen.* (Experiments with High-Grade special Portland Cements.) Alexander Hasch. Oest. Ing. Arch. Ver. May 29, '25.

b. Metals

- Ein neues Lagermetall.* (A New Bearing Metal.) Oest. Ing. Arch. Ver. Jan. '23, '25.
- Ueber Gleit- und Brucherscheinungen.* (Slip and Fracture Phenomena.) Joseph Scholl. Ver. deu. Ing. March 28, '25.

c. Preservation and Use of Materials

- Report of Committee on Preservatives. Am Wood Pres. Assoc., 1924.
- Relation of Temperature and Pressure to the Absorption and Penetration of Zinc Chloride Solution into Wood. J. D. MacLean. Am. Wood Pres. Assoc., 1924.
- The Comparative Resistance of 17 Species of Wood-Destroying Fungi to Sodium Fluoride. C. A. Richards. Am. Wood Pres. Assoc., 1924.
- A Theory on the Mechanism of the Protection of Wood by Preservatives—Part V: Further Work on Hydrocarbons. E. Bateman and C. Henningsen. Am. Wood Pres. Assoc., 1924.
- Visual Determination of Penetration of Sodium Fluoride in Treated Wood. G. T. Parker and H. A. Ceauque. Am. Wood Pres. Assoc., 1924.
- Report of Committee 5-3—Treatment of Timber. Am. Wood Pres. Assoc., '24.
- Mixtures of Petroleum with Low Temperature Coal Tar Products.* K. M. Waddell. Am. Wood Pres. Assoc., '24.
- Report of Committee 5-5-2—Pressure Treatments of Poles. Am. Wood Pres. Assoc., 1924.
- Report of Committee on Treatment of Posts. Am. Wood Pres. Assoc., 1924.

- Report of Committee 5-5-2—Non-Pressure Treatment of Poles. Am. Wood Pres. Assoc., 1924.
 Report of Committee No. 8—Steam Treatments.* Am. Wood Pres. Assoc., 1924.
 Increasing the Efficiency of the Screw Propeller.* Walter Pollock. (Paper read before Inst. Naval Archts.) Eng. Apr. 10, '25.
 New Process for Treating Wood.* A. M. Howald. Eng. & Contr. (From paper read before Am. Wood Pres. Assoc.) Apr. 17, '25.
 Waterproofing a Highway Bridge.* E. T. Scott. (From *California Highways*.) Eng. & Contr. June 3, '25.

e. Earthwork, Cubage, Excavating Machinery

- Elne Grabenverlegung im schiebenden Gebirge.* (Relocating a Ditch in Moving Soil.) H. Seeger. S. d. Bauver. Apr. 15, '25.

f. Rock Excavation, Mining, Rock Removal

- Abstract of Institute Papers.* Min. & Metal. Apr., '25.
 Recent Developments in Blasting. J. R. St. Clair. (Paper read before Engrs.' Club of Northern Minn.) Mun. & Co. Eng. Apr. '25.
 Institute Papers. Min. & Metal. May, '25.
 Abstract of Institute Papers.* Min. & Metal. June, '25.

g. Execution of Works. Specifications

2. Of Concrete
 Concreting Under Restricted Conditions.* William Wren Hay. (From *Concrete*.) Eng. & Contr. May 27, '25.
 Das Torkret (Betonstpritz) verfahren und seine Anwendung.* (The Torkret (Concrete Spray) Method and its Application.) Jul. Gutmann. Oest. Ing. Arch. Ver. March 6, '25.

4. Of Metal
 Final Report of the Special Committee on Stresses in Structural Steel. Discussion. D. B. Steinman, Clyde T. Morris, Lewis E. Moore, and J. A. L. Waddell. Am. Soc. C. E. Apr., '25.
 C. E. S. A. Specification for Steel. Can. Engr. Mar. 31, '25.
 Final Report of the Special Committee on Stresses in Structural Steel. Discussion. A. N. Talbot, F. E. Schmitt, Anson Marston, and J. R. Worcester. Am. Soc. C. E. May, '25.

5. Of Reinforced Concrete
 Building a High Reservoir Wall of Reinforced Concrete.* Eng. N. R. Apr. 9, '25.
 Moving Forms Used on Framed Concrete Building.* J. O. B. Coulling. Eng. N. R. June 4, '25.

- Mitteilungen aus verschiedenen Fachgebieten. Die Möglichkeit eines Eisenbetonstils.* (Communications from Various Technical Fields. The Possibility of a Reinforced Concrete Style of Architecture.) Oest. Ing. Arch. Ver. May 1, '25.

h. Foundations

- Deep-Water Bridge Foundation of Concrete Pipe Piles.* Eng. N. R. Apr. 2, '25.
 The Substructure of New York Edison Co.'s Power House.* Frank W. Skinner. Eng. & Contr. Apr. 17, '25.
 Deep Foundations Replace Piles Tilting to River.* Eng. N. R. May 14, '25.
 Foundations Under Steam Plant Renewed Without Shutdown.* C. P. Dunn. Eng. N. R. May 28, '25.
 Sinking Pneumatic and Open Caisson Foundations for Philadelphia-Camden Bridge.* Charles Carswell. Eng. N. R. June 4, '25.
 Festigkeitsmechanische Prüfung des Baubodens.* (Mechanical Testing of Building Ground.) Ottokar Stern. Schw. Bauz. Apr. 18, '25.

i. Piles and Pile-Driving

- Making and Driving 110-Ft. Concrete Piles at Manila.* E. C. Earle. Eng. N. R. May 7, '25.
 A Rational Pile-Driving Formula and its Application in Piling Practice Explained.* A. Hilley. Eng. Serial beginning May 29, '25.
 Summary of Marine Piling Investigation.* Amos A. Fries. Mil. Engr. May-June, '25.
 Subaqueous Method of Pile-driving.* H. G. McCormick. Mil. Engr. May-June, '25.
 Die Wirtschaftlichkeit des Druckluftantriebes für Kleinrammen.* (The Economy of the Compressed Air Drive for Small Pile-Drivers.) Hugo Fischl. Oest. Ing. Arch. Ver. Apr. 3, '25.
 Nachweis der Belastung einzelner Pfähle bei einseitiger Belastung von Pfahlgruppen.* (Determination of the Loading on Single Piles under One-sided Loading of Groups of Piles.) O. Colberg. Oest. Ing. Arch. Ver. May 15, '25.

k. Tunnels and Tunneling-Shield

- Plugging a High Pressure Tunnel, Buffalo Filter Plant.* C. S. Rindsfoos. Eng. N. R. Apr. 16, '25.
 World's Largest Hydro Electric Tunnel.* Eng. & Contr. Apr. 17, '25.
 Fine Sand Causes Trouble in Tunnel. Ry. Eng. & Main. May, '25.
 Exhaust-and-Supply Ventilation of a Long Street Tunnel.* Eng. N. R. May 7, '25.
 Proposed Windsor-Detroit Traffic Tunnel.* Can. Engr. June 9, '25.
 Construction Methods on Six-Mile Moffat Tunnel.* Eng. N. R. June 11, '25.
 Maintaining Compressed-Air Lines 19 000 Ft. Long.* Eng. N. R. June 18, '25.
 Ventilation Methods in Florence Lake Tunnel.* Eng. N. R. June 18, '25.

D. Highways

c. Construction

- Important Features of Concrete Pavement Construction. H. C. Boyden. (Paper read before Sixth Annual Road Inst.) Mun. & Co. Eng. Mar., '25.

- Factors Affecting Construction Efficiency and Influence of Specification Interpretation on Costs. T. J. Wasser. (Paper read before Assoc. Highway Officials of the North Atlantic States.) Mun. & Co. Eng. Mar., '25.
- Relation of Form Setting to Riding Qualities of Concrete Pavements. C. N. Connor. (Paper read before Am. Road Bldrs. Assoc.) Mun. & Co. Eng. Mar., '25.
- Design and Construction Features (South Water Street Improvement.)* T. A. Evans. West. Soc. Engrs. Mar., '25.
- Saving Old Stone Roads by Resurfacing. Harry F. Harris. (Paper read before Asphalt Paving Conference.) Can. Engr. Mar. 24, '25.
- New Asphalt Pavement Patent.* Charles A. Mullen. Can. Engr. Mar. 31, '25.
- The Destructive Forces in Pavements.* S. B. Moore and F. A. Tondorf. Mil. Engr. Mar.-Apr., '25.
- Reclaiming Old Roads.* A. H. Hinkle. (Paper read before Am. Road Bldrs. Assoc.) Eng. & Contr. Apr. 1, '25.
- Concrete Pavement Reinforcement Logically Designed.* George D. Burr. Eng. N. R. Apr. 9, '25.
- Brick Paving on Water-Bearing Clay Subgrade.* Frank R. Allen. Eng. N. R. Apr. 9, '25.
- Road Construction and Maintenance. James Todd. (Paper read before Conference on Road Constr.) Can. Engr. Apr. 28, '25.
- New Jersey Plans Arterial Road from Holland Tunnel.* Eng. N. R. Apr. 30, '25.
- Bituminous Treatment of Gravel Roads. A. D. Carpenter. (Paper read before Minnesota Surveyors and Engrs. Soc.) Mun. & Co. Eng. May, '25.
- Proposed Causeway Between Rockaway Beach and Sandy Hook, N. Y.* William J. Wilgus. Mun. & Co. Eng. May, '25.
- Grading of Aggregates for Asphaltic Carpeting of Road Surfaces.* E. Witton Booth. Inst. Mun. & Co. Eng. May 5, '25.
- Bituminous Macadam Road Construction. A. O. Hastings. (Paper read before Purdue Road School.) Eng. & Contr. May 6, '25.
- Resurfacing Badly Worn City Pavements.* R. H. Simpson. (Paper read before Purdue Road School.) Eng. & Contr. May 6, '25.
- Some Notes on Road Construction. J. A. Ryan. Inst. Mun. & Co. Engrs. June 2, '25.
- Reinforced Concrete Roadways: Points of Importance. N. A. Chance. Inst. Mun. & Co. Engrs. June 2, '25.
- English Highway Practice. (Paper read before Am. Road Bldrs. Assoc.) A. B. Fletcher. Eng. & Contr. June 3, '25.
- Highway Reconstruction in Nova Scotia.* R. W. McColough. Can. Engr. June 9, '25.
- Mountain Highway Built on Railway Grade.* Eng. N. R. June 18, '25.
- Sandasphaltpflaster im Verbund mit der Betonunterlage.* (Sand-Asphalt Paving in Connection with Concrete Foundation.) W. Reiner. Z. d. Bauver. Jan. 21, '25.
- Stauwirkung von Rohrdurchlässen.* (The Damming Action of Pipe Culverts.) R. Winkel. Z. d. Bauver. March 18, '25.

d. Maintenance

- Necessity of Adequate Maintenance. H. A. Lumsden. (Paper read before Conference on Road Constr.) Can. Engr. Mar. 17, '25.
- Dust Control on Gravel Roads in Michigan.* B. C. Tiney. (Paper read before Am. Road Bldrs. Assoc.) Eng. N. R. Apr. 2, '25.
- Improvement in Design and Appearance of Highway Bridges.* C. J. Desbaillets. Eng. Inst. Can. May, '25.
- Tar Treatment of Gravel Roads.* F. L. Betts. (Paper read before Highway Eng. Conference, Univ. of Michigan.) Eng. & Contr. May 6, '25.
- Report of Committee on Maintenance.* (Advisory Board of Highway Research.) Can. Engr. June 2, '25.
- Lining Up a Highway Maintenance Patrol Personnel. H. J. Friedman. Eng. N. R. June 18, '25.
- Les Chaussées Calcaires Silicatées.* ("Silicated Limestone" Roads.) M. Guelle. Gen. Civ. May 23, '25.
- Neuzeitliche Strassenverbesserungen in der Schweiz. (Recent Road Improvements in Switzerland.) Eduard Ammann. Oest. Ing. Arch. Ver. May 29, '25.
- Die moderne Landstrasse und die Probleme des Wiederaufbaues der österreichischen Landstrassen.* (The modern Highway and the Problem of the Reconstruction of the Austrian Highways.) August Smola. Oest. Ing. Arch. Ver. May 29, '25.
- Strassenbau und Strassenerhaltung in Wien.* (Street Construction and Maintenance in Vienna.) Leopold Kosetschek. Oest. Ing. Arch. Ver. May 29, '25.

g. Machinery and Tools

- Improved Methods Cut Upkeep Costs of Concrete Roads.* H. J. Friedman. Eng. N. R. Mar. 26, '25.
- The Economical Use of Wheel Scrapers.* J. L. Harrison. (From *Public Roads*.) Eng. & Contr. Apr. 17, '25.
- Trench Excavators Build Road Grade Across Lake of Mud.* Eng. N. R. Apr. 23, '25.
- Labor-Saving Equipment in Road Construction.* E. H. Lichtenberg and James A. Shepard. Mech. Eng. May, '25.

h. Vehicles, Automobiles, Traffic

- The South Water Street Improvement. Hugh E. Young. West. Soc. Engrs. Mar., '25.
- Some Results of the Cook County (Ill.) Traffic Survey. George A. Quinlan. (From paper read before Univ. of Illinois.) Mun. & Co. Eng. Mar., '25.
- The Influence of the Automobile on Regional Transportation Planning. George A. Damon. Am. Soc. C. E. Apr., '25.
- Development of Highway Traffic in California.* Arthur E. Loder, Watt L. Moreland, and T. E. Stanton, Jr. Am. Soc. C. E. Apr., '25.
- The Bottle Neck of Highway Transportation. C. C. Williams. Eng. & Contr. Apr. 1, '25.

- The Pennsylvania Highway Transport Survey. William H. Connell. (Paper read before Highway Eng. Conference, Univ. of Michigan.) *Mun. & Co. Eng. Apr.*, '25.
- Vehicular Traffic in Chicago and Cook County.* Geo. A. Quinlan. *West. Soc. Engrs. Apr.*, '25.
- Public Safety. Sidney J. Williams. *West. Soc. Engrs. Apr.*, '25.
- Elements Governing the Developments of Highway Traffic.* A. N. Johnson. (Paper read before Highway Div.) *Am. Soc. C. E. May*, '25.
- The Influence of the Automobile on Regional Transportation Planning. Discussion. Stephen Child. *Am. Soc. C. E. May*, '25.
- The Motor Vehicle as a Transportation Facility. R. A. C. Henry. *Eng. Inst. Can. May*, '25.
- Natural Vibration Period of Tires is Cause of Corrugations.* Robert J. Walker. *Eng. N. R. May 7*, '25.
- La Circulation Automobile et la Problème Actuel de la Route en France.* (Automobile Traffic and the Present Road Problem in France.) *J. Fedl. Gen. Civ. Mar. 14*, '25.
- Les Variations de l'Accélération des Véhicules; Leur Mesure par l'Accéléromètre Puica et Keraval.* (Variations in the Acceleration of Vehicles; their Measurement by the Puica and Keraval Accelerometer.) G. Puica and J. Keraval. *Gen. Civ. Apr. 25*, '25.
- Fahrzeug und Strasse.* (Vehicles and Roads.) O. Windberger. *Oest. Ing. Arch. Ver. May 29*, '25.

x. Miscellaneous

- Sheet Asphalt Mixture Research.* Hugh W. Skidmore. (Paper read before Wisconsin Eng. Soc.) *Eng. & Contr. Apr. 1*, '25.
- Work of the Testing Bureau of the Illinois Highway Department.* H. F. Clemmer. (Paper read before Illinois Soc. Engrs.) *Mun. & Co. Eng. Mar.*, '25.
- Highway Research Report on Character and Use of Road Material. (Advisory Board of Highway Research.) *Mun. & Co. Eng. Apr.*, '25.
- New Theory of Asphalt Mixtures. Moray F. MacNaughton. (Abstract of paper read before Conference on Highway Eng., Univ. of Michigan.) *Can. Engr. Serial beginning May 5*, '25.
- Relative Value of Mineral Fillers.* Prevost Hubbard and Frederick C. Field. (Paper read before Am. Road Bldrs.' Assoc.) *Eng. & Contr. May 6*, '25.
- New Theory of Asphalt Mixtures.* Moray F. MacNaughton. (Paper read before Univ. of Mich.) *Can. Engr. May 19*, '25.
- New Theory of Asphalt Mixtures.* Moray F. MacNaughton. (Paper read before Univ. of Michigan.) *Can. Engr. Serial beginning May 26*, '25.
- New Theory of Asphalt Mixtures.* Moray F. MacNaughton. (Paper read before Univ. of Michigan.) *Can. Engr. June 2*, '25.
- Projet de Traversée du Pas-de-Calais au Moyen d'une Double Jetée Formant Chenal et de Viaducs pour Routes et Voies Ferrées.* (Scheme for Crossing the English Channel by a Double Jetty Forming a Channel and of Viaducts for Highways and Railroads.) J. Jaeger. *Gen. Civ. May 9*, '25.
- Das Projekt der Grossglockner-Hochalpenstrasse.* (The Grossglockner-Hochalpen Road Project.) Franz Wallack. *Oest. Ing. Arch. Ver. May 29*, '25.

E. Bridges, Viaducts, and Arches

a. Timber Bridges and Viaducts

- Thorough Plan Insures Success of Viaduct Erection.* F. H. Cramer. *Ry. Eng. & Main. Apr.*, '25.
- Eine hölzerne Strassenbrücke über den Neckar.* (A Wooden Highway Bridge Over the Neckar.) H. Seitz. *Z. d. Bauver. Feb. 25*, '25.

b. Iron or Steel Bridges and Viaducts

- The New Niagara Arch Bridge.* H. Ibsen. *Eng. Inst. Can. Apr.*, '25.
- Long Spans of Hudson River Bridge Erected by Progressive Cantilever Method.* H. T. Welty. *Eng. N. R. Apr. 2*, '25.
- Shifting a Bridge in Vienna.* *Engr. Apr. 17*, '25.
- Strengthening and Re-Decking Old Bridge for Heavy Traffic. Lewis E. Moore. *Eng. N. R. Apr. 23*, '25.
- Falsework Permits Erection of Bridge Without Obstructing Traffic.* J. M. Salmon. *Ry. Eng. & Main. May*, '25.
- Quantity Production in Girder Span Renewal Project.* P. H. Winchester. *Ry. Eng. & Main. June*, '25.
- Widening the Missouri River Highway Bridge at Omaha.* *Eng. N. R. June 18*, '25.
- La Résistance des Joints en Construction Métallique.* (Strength of Joints in Metal Structures.) Decoufle. *Gen. Civ. May 16*, '25.
- L'élargissement du Pont Doumer sur le Fleuve Rouge, à Hanoi, Tonkin.* (The Enlargement of the Doumer Bridge over the Red River, at Hanoi, Tonkin.) Ch. Dantin. *Gen. Civ. Apr. 25*, '25.

d. Concrete and Reinforced Concrete Bridges and Viaducts

- Economical Design for Arch Centres.* A. E. Winn. (From paper read before British Assoc. Advancement of Science.) *Can. Engr. Mar. 24*, '25.
- A Small Concrete Cantilever Bridge.* S. A. Bunting. (From *Concrete and Constructional Engineering*.) *Eng. & Contr. Mar. 25*, '25.
- Continuous Three-Span Concrete Railway Bridge.* *Eng. N. R. Mar. 26*, '25.
- Design of Symmetrical Concrete Arches.* Discussion: R. R. Martel, E. H. Harder, Charles W. Comstock, and A. G. Hayden. *Am. Soc. C. E. Apr.*, '25.
- Rib-Arch Concrete Highway Bridge Over Rock River, Ill.* Walter S. Todd. *Eng. N. R. Apr. 16*, '25.

- Design of Symmetrical Concrete Arches.* Discussion: H. E. Warrington. May, '25.
 The Development of Reinforced Concrete Bridge Construction.* William Mueser, Cornell C. E. May, '25.
 Construction of the Neponset Bridge.* J. Stuart Crandall. Bost. Soc. C. E. May, '25.
 Bridge Building on an Indiana State Highway.* Eng. N. R. May 14, '25.
 Die Brücke in Villeneuve-sur-Lot, nebst Betrachtungen zum Gewölbebau.* (The Bridge in Villeneuve-sur-Lot with Observations on Arched Construction.) R. Maillart. Schw. Bauz. Serial beginning March 21, '25.

g. Swing, Bascule, Lift, Floating, Oscillating Bridges; Traveling Cranes

- Bridge Over the Second Narrows, B. C.* Percy Ward. Can Engr. Mar. 31, '25.

h. Computations, Tests, etc.

- Theory of Transverse Oscillations in Girders, and Its Relation to Live-Load and Impact Allowances.* Charles Edward Inglis. Inst. C. E. Vol. 218, 1923-24, Pt. 2.
 The Interaction in Bridgework of the Deck System on the Main Girders, and the Consequent Modification of Stresses therein.* Douglas Henry Remfry. Inst. C. E. Vol. 218, 1923-24, Pt. 2.
 Secondary Stresses in Bridges.* Discussion. Edward Godfrey and Cyrus C. Fishburn. Am. Soc. C. E. Apr., '25.

x. Miscellaneous

- Demolition of the Linda Vista Bridge.* Hans Kramer. Mil. Engr. Mar.-Apr., '25.
 Safeguarding Long Highway Bridge From Fire and Other Damage.* Eng. N. R. Apr. 30, '25.
 Some Engineering Aspects of a Toll Bridge Project.* H. H. Sherwin. Eng. N. R. May 7, '25.

F. Inland Waters

b. Canals (General Articles)

- Die Erweiterung des Södertälje Kanals.* (Widening of the Södertälje Canal.) Brandt. Z. d. Bauver. Feb. 25, '25.

c. Regulation of Waterways—Volume of Discharge, Freshets, Floods, Soundings

- How the Mississippi River is Regulated.* Charles L. Potter. Eng. N. R. Serial beginning Mar. 26, '25.
 Flood Flow Characteristics.* Robert Follansbee, O. W. Hartwell, E. C. LaRue, N. C. Grover, and B. Okazaki. Am. Soc. C. E. Apr., '25.
 Flood Protection of Winnipeg District.* Nelson Barrett. Can. Engr. Apr. 7, '25.
 The Regulation of the Murray River.* Eng. Serial beginning Mar. 27, '25.
 Flood Flow Characteristics.* Discussion: L. K. Sherman, George G. Honness, and L. M. Winsor. Am. Soc. C. E. May, '25.
 The Gauging of Rivers and Tidal Currents.* Eng. Serial beginning May 15, '25.
 Les Crues du Fleuve Rouge.* (The Floods of Red River (Cochin China).) M. Normandin. Ann. P. et C. Jan., '25.
 Die Niederwasser-Regulierung des Rheins zwischen Strassburg und Basel nach dem Ausführungs-Entwurf, 1924.* (Low-Water Regulation of the Rhine between Strassburg and Basle according to the 1924 Plan.) H. Bertschinger. Schw. Bauz. Serial beginning Apr. 4, '25.

d. Diverting Dams. Locks. Lifts. Elevators. Inclined Planes

- Construction of the Chanoine Weir.* Walter W. Gruber. Mil. Engr. Mar.-Apr., '25.
 Undermining Causes Failure of French Landing Dam.* Eng. N. R. Apr. 30, '25.

j. River and Lake Ports, Equipment

- Der Ausbau der Basler Rheinhafenanlagen.* (Extension of the Basel Rhine Port.) Schw. Bauz. March 14, '25.

k. Utilization of Inland Waterways, Freight, Capacity

- Zur Rheinschiffahrt Strassburg-Basel.* (The Strassburg-Basel Water Way on the Rhine). Schw. Bauz. March 14, '25.
 Die Schiffbarmachung des Oberrheins von Basel bis Strassburg.* (Making the Upper Rhine Navigable from Basle to Strassburg.) Peters. Z. d. Bauver. March 25, '25.
 Die Grossschiffahrtstrasse Rhein-Main-Donau.* (The Rhine-Main-Danube Route for Boat Navigation.) Kaspar Dantscher. Oest. Ing. Arch. Ver. Apr. 17, '25.

G. Maritime Works

c. Vessels and Maritime Navigation. Lighthouses and Buoys. Various Signals

- Wake Propeller Coefficients.* D. W. Taylor. (Paper read before Inst. Naval Archts.) Eng. Apr. 3, '25.
 Skin Friction Committee's Report.* (Paper read before Inst. Naval Archts.) Eng. Apr. 10, '25.
 Stability and Seaworthiness.* C. Frodsham Holt. Eng. Serial beginning Apr. 17, '25.
 The Motor Ship Raby Castle.* Engr. Apr. 24, '25.
 Model Experiments with Anti-Rolling Tanks.* H. J. R. Biles. (Paper read before Inst. Naval Archts.) Eng. Apr. 24, '25.
 Propeller-jet Marine Propulsion.* Engr. May 1, '25.

- Technical Phases of Lighthouse Service.* R. R. Tinkham. Mil. Engr. May-June, '25.
 Signal Corps Lays the Alaskan Cable.* C. A. Seoane. Mil. Engr. May-June, '25.
 Le Paquebot à Moteurs Diesel "Aorangi".* (The "Aorangi," Diesel Motor Ship.) Ol. Quéant. Gen. Civ. Mar. 28, '25.
 Les Théories de l'Aérodynamique Moderne sur l'Effet Magnus et les Voiles Tournante Flettner.* (Modern Aerodynamic Theories on the Magnus Effect of the Revolving Flettner Cylinders.) G. Delanghe. Gen. Civ. May 2, '25.
 Les Moteurs Électriques à Bord des Navires.* (Electric Motors in Ships.) F. Collin. Gen. Civ. May 23, '25.
 Der erste deutsche Turbinen-Radschleppdampfer "Dordrecht". (The First German Turbine Side Wheel Tug Boat "Dordrecht".) Ver. deu. Ing. March 14, '25.
 Die Einheitsschlepper des staatlichen Schleppmonopols.* (The Standard Tug-Boat of the Government Towing Monopoly.) Ebelt. Ver. deu. Ing. March 21, '25.
 Der See- und Bergungsschlepper "Seefalke".* (The Ocean and Salvage Tug "Seefalke".) F. Hillebrand and E. Müller. Ver. deu. Ing. Apr. 4, '25.

d. Roads and Outer Harbors. Dikes and Jetties. Breakwaters

- The Improvements at Coos Bay, Oregon.* George Mayo. Mil. Engr. May-June, '25.
 Brushwood Construction in River and Maritime Works.* O. C. A. Van Lidth de Jeude. (Paper read before Univ. of London.) Dock & Harbour June, '25.

e. Navigation Locks

- The Panama Canal after Ten Years.* Meriwether L. Walker. Mil. Engr. May-June, '25.

f. Maritime Rivers and Canals. Bank Protection

- The River Tyne: A Great Industrial Waterway.* Richard Aughton. Dock & Harbour June, '25.

g. Dredges and Dredging. Force Pumps. Refloating and Removing Wrecks. Ice-Breakers.

- La Renflouement de l'Épave du Cuirasse "Liberté" en Rade de Toulon.* (Floating the Wreck of the Battleship "Liberté" in the Roadstead of Toulon.) H. Faure. Gen. Civ. Mar. 14, '25.

h. Wharves. Mooring Buoys. Harbor Equipment

- Multiple-story Transit Sheds and Waterside Storage.* J. Wyman Ludlow. (Paper read before Am. Assoc. Port Auth.) Dock & Harbour Apr., '25.
 The Development of Pier Shed Doors.* A. T. Prescott. (Paper read before Soc. Terminal Engrs.) Dock & Harbour Apr., '25.
 The Drainage of Dock Excavations.* L. Bonnet and S. Blockmans. Dock & Harbour Apr., '25.
 New Concrete Pier at Bremerton Navy Yard.* J. Bernard Walker. Sci. Am. Apr., '25.
 Port of Manila Opens Large Shipping Pier.* E. C. Earle. Eng. N. R. Apr. 30, '25.
 Seaport Equipment.* George Bulkeley. (Paper read before Great Western Ry. Lecture & Debating Soc.) Dock & Harbour May, '25.
 Caissons for Wet and Dry Dock Entrances.* Wilfred C. Ash. Dock & Harbour May, '25.
 Le Silo à Grains du Port de Dunkerque.* (The Grain Elevator at the Port of Dunkerque.) P. Caufourier. Gen. Civ. May 2, '25.
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i. Harbors (General Articles)

- The Development of Madras Harbour.* H. H. G. Mitchell. Dock & Harbour Apr., '25.
 Work Starts on Port Development at Mobile, Alabama.* A. C. Davis. Eng. N. R. June 18, '25.
 Le Port de Dunkerque.* (The Port of Dunkirk.) M. Moutier. Soc. Ing. Civ. Fr. Oct., '24.

j. Dockyard Machinery and Shipyards. Dry Docks

- Dry Dock at Congella, Durban.* Eng. Serial beginning Apr. 10, '25.
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H. Railroads. Street and Interurban Railways. Automobiles. Aeronautics

a. Railroads

- On the Question of Suburban Services.* Mr. Direz. Int. Ry. Cong. Assoc. Mar., '25.
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3. Roadbed. Construction Work

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4. Track

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Schienenkopf und Radreifen.* (Rail-Heads and Tires.) R. Hanker. Zeit. Bau. Pt. 1 (Ingenieurbauteil), '25.

5. Signals and Safety Apparatus

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6. Rolling Stock (Locomotives, Cars)

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- Some Freight-Car-Maintenance Problems.* C. G. Juneau. Mech. Eng. June, '25.
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 Versuche an einem 500 P S-Rotationskompressor der Schweizer. Locomotivfabrik Winterthur.* (Tests on a 500 H.-P. Rotary Compressor of the Winterthur Locomotive Works, Switzerland.) P. Ostertag. Schw. Bauz. Apr. 11, '25.
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 Rohölokomotiven mit kompressorlosem Dieselmotor und Flüssigkeitsgetriebe.* (Crude Oil Locomotive with a Compressor-less Diesel Engine and Hydraulic Gear.) W. Schumacher. Ver. deu. Ing. May 9, '25.
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7. Use of Electricity
 Bombay Suburban Electrification.* Ry. Age Mar. 28, '25.
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 Communication in Railroad Operation. I. C. Forshee. A. I. E. E. May, '25.
 Gas Electric Car for the New Haven.* Ry. Age May 9, '25.
 New Catenary Construction on the Canadian National.* E. B. Walker. Ry. Age May 2, '25.
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8. Stations, Engine Houses, Shops, Terminals
 On the Question of Locomotive Sheds. R. W. Bell. Int. Ry. Cong. Assoc. Mar., '25.
 Union Pacific Builds Large Shops of Timber and Sheet Iron.* Ry. Age Mar. 28, '25.
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 Plan Railway and Ship Terminals for Seattle, Wash.* Eng. N. R. Apr. 9, '25.
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 Old Steel Trainshed Replaced by Platform Shelters.* Eng. N. R. Apr. 16, '25.
 Norfolk & Western Coaling Station is of Unusual Design.* Ry. Age Apr. 18, '25.
 Union Pacific Centralizes Control of Stores Operations.* Ry. Age May 9, '25.
 Car Retarders in Hump Yard Effective in Winter.* Ry. Age May 9, '25.
 Simple Change Converts Turntable to Three-Point Type.* David J. Jones. Ry. Age May 23, '25.
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 Pennsylvania R. R. Presents Plans for Philadelphia Station.* Eng. N. R. May 28, '25.
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 La Nouvelle Gare de Triage de Lille-la-Délivrance.* (The New Station for Making Up Trains at Lille-la-Délivrance.) M. Martin. Soc. Ing. Civ. Fr. Oct., '24.

b. Special Railroads

- 1. Rack Railroads**
 Seal Beach Station of the Los Angeles Gas & Electric Corporation.* Power June 2, '25.
2. Aerial Railroads (Funicular, Monorail)
 Die Drahtseilbahn auf dem steirischen Erzberg.* (The Wire Ropeway on the Styrian Erzberg.) E. E. Seefehlner. Oest. Ing. Arch. Ver. Apr. 3, '25.
3. Narrow Gauge. Light Railways
 Report on the Question of Concessions for Light Railways. Pietro Biraghi and Pietro Lo Balbo. Int. Ry. Cong. Assoc. Apr., '25.
 Philadelphia Builds Broad Street Subway.* Eng. N. R. May 21, '25.
3. Narrow Gauge. Light Railways
 L'utilisation des Trucks-Transporteurs sur les Chemins de Fer à Voie Etroite.* (The Use of Transporter Trucks on Narrow Gauge Railroads.) L. Petit. Gen. Civ. Mar. 14, '25.

d. Street Railways, Elevated Railways, Subways

- 1. General Articles**
 Der Umbau der City- und Südlondoner Eisenbahn.* (Rebuilding the City and South London Railway.) Z. d. Bauver. Feb. 25, '25.
 Vorschlag zur Verbesserung der Wiener Stadtbahn durch Erbauung einer Ergänzungslinie Margaretengürtel-Mariahilf.* (Proposal for Improving the Viennese Municipal Railroad by the Construction of a Supplementary Margaretgürtel-Mariahilf Line.) Carl Hochenegg. Oest. Ing. Arch. Ver. May 1, '25.
4. Track
 Electric Railway Track Construction.* H. W. Tate. (Paper read before Ontario Land Surveyors' Assoc.) Can. Engr. Apr. 28, '25.

e. Automobiles

2. Internal Combustion Engine Automobiles

Electric Lighting Equipment on Automobiles.* J. H. Hunt. A. I. E. E. May, '25.

3. Electric Automobiles

La Ligne d'Autobus Électrique à Trolley de Modane à Lanslebourg, Savoie.* (The Trackless Trolley Line from Modane to Lanslebourg, Savoy.) A. Chardin. Gen. Civ. Apr. 11, '25.

f. Aeronautics

1. General Articles

Engineering the Flight Around the World.* Mason M. Patrick. Mil. Engr. Mar.-Apr., '25.
Die Flugzeuge auf der neunten Pariser Luftfahrt-Ausstellung vom 5 bis 21 Dezember, 1924.* (The Flying Machines at the Ninth Paris Aviation Exhibition, from December 5 to 21, 1924.) F. Gossiau. Ver. deu. Ing. Apr. 4, '25.

3. Aeroplanes

The Low-Resistance Airplane.* J. Bernard Walker. Sci. Am. June, '25.

x. Miscellaneous

Model Experiments in Aerodynamics.* Eng. May 8, '25.

I. Municipal Water-Works. Agricultural Engineering

a. General Articles

Improvements to Water Works System, Regina.* J. W. E. Farrell. Can. Engr. Apr. 14, '25.

b. Hydrology. Water Resources

The Financial Status of Water Works in the United States as of January 1, 1924. Leonard Metcalf. Am. W. W. Assoc. Apr., '25.

The Water Supply Problem in Relation to the Future Chicago.* John Ericson. West. Soc. Engrs. Apr., '25.

New Water Facilities at Russell, Ky., Insure Adequate Supply.* Ry. Eng. & Main. May, '25.

The Secretary of War's Concern Over Water Waste in Chicago.* John M. Goodell. Am. W. W. Assoc. May, '25.

The Boone Water Supply. C. L. Ehrhart. Am. W. W. Assoc. May, '25.

Water-Works Improvements at Kearney, Neb.* Elmer L. Ferguson. Eng. N. R. May 28, '25.

Eine neue Trinkwasserzuleitung für Gotha.* (A New Water Pipe Line for Gotha.) Schubert. Gesund. Ing. Apr. 4, '25.

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Pennsylvania Constructs Large Dam to Insure Water Supply.* Charles Haydock. Ry. Eng. & Main. Apr., '25; Ry. Age Apr. 18, '25.

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Die Grundwasserbewegung im Grunewald bei Berlin.* (Ground Water Movement in the Grunewald near Berlin.) W. Koehne. Zeit. Bau. Pt. 1 (Ingenieurbauteil), '25.

c. Dams and Reservoirs

Reinforced Concrete Reservoir and Pipe Tunnel at Calumet City, Ill. Ernest A. Clark. Mun. & Co. Eng. Mar., '25.

Reservoir Construction on Oahu, H. T.* James F. C. Hyde. Mil. Engr. Mar.-Apr., '25.

World's Largest Rock-Fill Dam Built on Dix River.* George W. Howson. Eng. N. R. Apr. 2, '25.

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Garza Dam for Dallas Water-Works Will Impound 63 Billion Gallons.* Eng. N. R. Apr. 16, '25.

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Four-Mile Belt Conveyor System.* (For Dam.) Eng. & Contr. Apr. 17, '25.

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Irrigation Enterprises in Australia.* Engr. Apr. 24, '25.

The Impounding Reservoir, Its Troubles and the Remedies. H. L. Shaner. Am. W. W. Assoc. May, '25.

Care of Concrete Lined Reservoirs. R. E. McDonnell. Mun. & Co. Eng. May, '25.

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Exchequer Dam Construction Plant Built in Narrow Canyon.* Eng. N. R. May 28, '25.

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- Note sur la Rupture du Barrage de Bouzy.* (Note on the Rupture of the Bouzy Dam.) V. de Belaevsky. Gen. Civ. Mar. 7, '25.
 Die Bogen-Staumauer von Montejaque.* (The Montejaque Arched Dam.) M. E. Wegenstein. Schw. Bauz. Mar. 28, '25.

d. Analysis and Purification of Water

- Municipal Water Supply Filter Sand. W. M. Weigel. Can. Engr. Apr. 7, '25.
 Testing and Placarding Roadside Waters in Pennsylvania.* Earle L. Waterman and H. P. Drake. Eng. N. R. Apr. 16, '25.
 Experience with Wood-Grating in Sacramento Filters.* Harry N. Jenks. Eng. N. R. Apr. 16, '25.
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 Isolation of the Colon Group in Water.* Norman J. Howard and Rudolph E. Thompson. Can. Engr. Apr. 21, '25.
 New Gravity Water Supply in Use at Charlottesville, Va. Lee H. Williamson. Eng. N. R. Apr. 23, '25.
 Improvements in Filtration Process at Watertown, New York. F. H. Jennings. N. E. W. W. Assoc. Mar., '25.
 Water Treatment and Laboratory Control. Wilfred F. Langelier. Am. W. W. Assoc. Apr., '25.
 Control of Sludge Level in Sedimentation Basins.* L. B. Mangun. Am. W. W. Assoc. Apr., '25.
 Aeration of Water at Fort Worth, Texas.* W. S. Mahlie. Am. W. W. Assoc. Apr., '25.
 Operation Results at the Water Purification Plant at Topeka, Kansas.* N. T. Veatch. Am. W. W. Assoc. Apr., '25.
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 Unique Method of Cleaning Filter Sand. William J. Orchard. (Paper read before Southwest W. W. Assoc.) Eng. & Contr. May 13, '25.
 Sedimentation of Turbid River Water. Wynkoop Kiersted. (Paper read before Southwest W. W. Assoc.) Eng. & Contr. June 10, '25.
 Gefahren des Eintritts unreiner Flüssigkeiten in Trink- und Nutzwasserleitungen.* (Danger of Entrance of Impure Liquids in Potable and Industrial Water Pipe Lines.) Karl Schwarz. Gesund. Ing. Feb. 28, '25.

e. Distribution of Water

- Large and Small Fire Hose, Water Pressures, and Hydrant Spacings. William R. Conard. N. E. W. Assoc. Mar., '25.
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 Sandspur Pipe. Charles R. Wood. N. E. W. W. Assoc. Mar., '25.
 The Corrosion Problem in Connection with Water Works Engineering.* F. N. Speller. N. E. W. W. Assoc. Mar., '25.
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 Los Angeles Plans 268-Mi. Aqueduct from Colorado River. Eng. N. R. Apr. 2, '25.
 Some Notes on Electrolysis of Water Pipes. Waldo S. Coulter. (From Fire and Water Engineering.) Eng. & Contr. Apr. 10, '25.
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 The Western Avenue Pumping Station.* L. D. Gayton. West. Soc. Engrs., May, '25.
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 Reducing Water Waste in Border Cities.* J. Clarke Keith. Can. Engr. June 9, '25.
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f. Drainage of Land

- Aesthetic Treatment of Drainage Spoil Banks. Milo C. Taylor. (Paper read before Illinois Soc. Engrs.) Mun. & Co. Eng. Mar., '25.

J. Sewerage. Sewage and Refuse Disposal

a. Sewers and Drains

- Re-Arching a Storm Water Sewer at Brooklyn, N. Y.* Frank W. Skinner. Cornell C. E. Apr., '25.
 Problems of Sewer Design in Canada. A. G. Dalzell. Can. Engr. Apr. 21, '25.
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 Problems of Sewer Design in Canada.* A. G. Dalzell. Can. Engr. May 12, '25.
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 Metropolitan Sewer Plan for Los Angeles County.* A. K. Warren. Engr. N. R. June 18, '25.

b. Sewage Disposal. Purification

- Remodeling Sewage Treatment Plant at Rochelle, Illinois. Robert Isham Randolph. (Paper read before Illinois Soc. Engrs.) Mun. & Co. Eng. Mar., '25.
 Methods and Policies of Preventing Stream Pollution. H. V. Pederson. (Paper read before Iowa Eng. Soc.) Mun. & Co. Eng. Mar., '25.

- The Sewerage System of the Town of Westerly, R. I.* Thomas McKenzie. Bost. Soc. C. E. Mar., '25.
- Activated Sludge Plants at Houston. J. V. McVea. (Paper read before Int. Conference for San. Engrs.) Can. Engr. Mar. 17, '25.
- Sewage Disposal Plant for Milwaukee. T. Chalkley Hatton. Can. Engr. Mar. 31, '25.
- Compact Underground Sewage-Works in Lower New York.* William Goldsmith. Eng. N. R. Apr. 9, '25.
- The U. S. Army Sewage Treatment Plant.* Leonard S. Doten. Eng. & Contr. Apr. 10, '25.
- Objectives in Sewage Treatment. Jack J. Hinman. (Paper read before Sixth Conference on Sewage Treatment.) Mun. & Co. Eng. Apr., '25.
- The Sewage Disposal Problem of Chicago. George W. Fuller. West. Soc. Engrs. Apr., '25.
- Minneapolis Building 210-Ton Garbage Incinerator Plant. J. A. Jensen. Eng. N. R. Apr. 16, '25.
- Lime Hypochlorite Lowers Psychoda Flies at Sewage-Works.* Morris M. Cohn. Eng. N. R. Apr. 23, '25.
- Control of Odors from Sewage Treatment Plants. John F. Skinner. (Paper read before San. Eng. Div.) Am. Soc. C. E. May, '25.
- Elimination of Odors from Garbage Disposal Works.* Samuel A. Greeley. (Paper read before San. Eng. Div.) Am. Soc. C. E. May, '25.
- Imhoff Tanks—Reasons for Differences in Behavior.* Harrison P. Eddy. Am. Soc. C. E. May, '25.
- Disposal of Excess Activated Sludge by Digestion.* Karl Imhoff. (Paper read before N. Y. Section, Am. Soc. C. E.) Eng. N. R. June 4, '25.
- A Small Sewage Disposal Plant. Leonard S. Doten. (Paper read before Quartermaster Corps School, U. S. Army.) Eng. & Contr. June 10, '25.
- Assainissement des Villes; l'Epuratation des Eaux d'Egout.* (Municipal Sanitation; Purification of Sewage Water). M. Verrière. Ann. P. et C. Jan., '25.
- Schlammbehandlung nach dem Faulverfahren. (Sludge Handling by the Septic Process.) Hermann Kurz. Gesund. Ing. Apr. 11, '25.
- Ein neuer Kanalspülwagen.* (A New Sewer Pipe Cleaning Device.) Schulz. Gesund. Ing. May 9, '25.

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- Methods for Determining the Origin, Prevalence, and Effect of Obnoxious Odors and the Evaluation of An Odor Nuisance. Stephen DeM. Gage. (Paper read before San. Eng. Div.) Am. Soc. C. E. May, '25.
- The Detection and Elimination of Odors from Oil Refineries.* Robert Spurr Weston. (Paper read before San. Eng. Div.) Am. Soc. C. E. May, '25.
- Laws Relating to Obnoxious Odors. Irving I. Goldsmith. (Paper read before San. Eng. Div.) Am. Soc. C. E. May, '25.
- The Atmosphere and Its Relations to Human Health and Comfort. C.-E. A. Winslow. (Paper read before San. Eng. Div.) Am. Soc. C. E. May, '25.

K. Heat Engines

b. Steam Turbines

- Test of a Prosser-Type Reciprocating Steam Engine.* L. V. Ludy. Mech. Eng. Apr., '25.
- Ueber Biegungsschwingungen von Dampfturbinenlaufrädern.* (Flexure Vibrations in Steam Turbine Runners.) Ernst Oehler. Ver. deu. Ing. Mar. 14, '25.
- Neuere englische Dampfturbinen.* (Recent English Steam Turbines.) Ver. deu. Ing. Apr. 11, '25.
- Der wahre Wirkungsgrad der Gleichdruckturbine.* (The true Efficiency of the Impulse Steam Turbine.) H. Richter. Ver. deu. Ing. May 2, '25.

c. Gas and Oil Engines

- Industrial Use of the Oil Engine. L. H. Morrison. Mech. Eng. Apr. '25.
- Solid-Injection Oil Engines.* R. Hildebrand. Mech. Eng. Apr., '25.
- Heavy-Oil Engines. H. Riell Sankey. (From "James Forrest" Lecture.) Engr. May 8, '25.
- Die Oelmaschinenanlage der 20 600 t-Motorschiffe "Svealand" und "Americaland".* (The Oil Engines of the 20 600 ton Motorships "Svealand" and "Americaland".) Hans Thorwarth. Ver. deu. Ing. March 7, '25.

L. Electricity

a. Production of Electricity

2. Magneto and Dynamo. Electric Machines

- Installing Non-Condensing Turbine Lowers Factory Power Costs.* F. A. Westbrook. Power June 9, '25.
- Nouveau Générateur Électrique à Courant Continu à 600 000 Volts, Système Gaiffe-Gallot et Pilon.* (New 600 000 Volt Direct-Current Electric Generator Gaiffe-Gallot and Pilon Design.) Gen. Civ. Apr. 4, '25.

b. Distribution and Transmission of Electricity

1. Power Plants

- The Barton Power-Station of the Manchester Corporation, and the Transmission System in Connection Therewith.* Henry Newmarch Allott and Standen Leonard Pearce. Inst. C. E. Vol. 218, 1923-24, Pt. 2.
- Dalmarnock Electricity Works.* William Burnside. Inst. C. E. Vol. 218, 1923-24, Pt. 2.

- Electric Energy from Large Power Plants. H. E. M. Kensit. Can. Engr. Apr. 14, '25.
 Weymouth Power Station of the Edison Electric Illuminating Company of Boston.* Power Apr. 14, '25.
 The Bow Power Station.* Engr. May 15, '25.
 The Hastings Electric Power Station.* Eng. May 29, '25.
 Crawford Avenue Station of the Commonwealth Edison Company.* Power June 16, '25.
2. Long-Distance Transmission of Energy
 Protective Relays for Central Station Systems. O. J. Bliss. West. Soc. Engrs. May '25.
 Over-Voltage on Transmission Systems Due to Dropping of Load.* E. J. Burnham. A. I. E. E. June, '25.
 Special Features in Connection with the Generation and Distribution of Electrical Energy in Great Britain. E. W. Marchant. Eng. Inst. Can. June, '25.
3. Distribution and Wiring of Electricity
 The Construction of Joint-pole Circuits.* Allen E. Ransom. Mil. Engr. Mar.-Apr., '25.

f. Signals and Communication

- Metallic Polar-Duplex Telegraph System for Long Small-Gage Cables.* John H. Bell and others. A. I. E. E. Apr., '25.
 Communication in Railroad Operation. I. C. Forshee. A. I. E. E. May, '25.
 The Transmission of Pictures by Telephone.* Herbert E. Ives. West. Soc. C. E. May, '25.
 Echo Suppressors for Long Telephone Circuits.* A. B. Clark and R. C. Mathes. A. I. E. E. June, '25.
 Die Technik des Fernsprechens im Weitverkehr.* (The Technique of Telephony in Long-Distance Communication.) Max Engelhardt. Oest. Ing. Arch. Ver. May 1, '25.

M. Architecture

a. Educational, Government and Scientific Buildings

- A Fireproof School Building Containing Novel Features.* F. A. Naramore. (From *Concrete*.) Eng. & Contr. Mar. 25, '25.
 The Arlington Memorial Amphitheater.* C. O. Sherrill. Mil. Engr. Mar.-Apr., '25.
 Der Neubau des Land- und Amtsgerichtsgebäudes in Düsseldorf.* (The New Provincial and County Court House in Düsseldorf.) Zeit. Bau. Pt. 1 (Hochbautell), '25.
 Die Neubauten des Braunkohlenforschungsinstituts in Freiberg i. Sachsen.* (New Buildings for the Brown Coal Research Institute in Freiberg, Saxony.) Oskar Kramer. Z. d. Bauver. Feb. 25, '25.
 Werkstoffliches von der Pfarrkirche in Schwaz im Unterinntal.* (Building Materials in the Pfarr Church in Schwaz, Unterinntal.) Seipp. Oest. Ing. Arch. Ver. May 1, '25.

b. Business and Commercial Buildings

- A 24-Story Steel-Frame Tower Building in Chicago.* Eng. N. R. May 21, '25.
 The American News Building New York City.* (From *Architecture and Building*.) (Eng. & Contr. May 27, '25.
 Die Untergrund-Messhalle in Leipzig.* (The Underground Exhibition Hall in Leipzig.) Z. d. Bauver. Feb. 25, '25.
 Kantonalbank-Neubau in Frauenfeld.* (New Cantonal Bank Building in Frauenfeld.) Schw. Bauz. Apr. 4, '25.

c. Residences, Hotels

- Wohngebäude für Reichsfinanzbeamte and der Meuschelstrasse in Nürnberg.* (Dwellings for the State Treasury Employees on Meuschelstrasse in Nuremberg.) Fiedler. Z. d. Bauver. Feb. 25, '25.

d. Storage Buildings

- Recent Advancement in the Construction and Operation of Grain Elevators.* L. Coke Hill. Eng. Inst. Can. Apr., '25.
 Reliance Terminal Elevator, Fort William.* D. V. Whitehead. Can. Engr. Apr. 28, '25.

e. Hospitals and Asylums

- Erweiterungsbau der Universitäts-Frauenklinik in Giessen.* (Enlargement of the University Women's Clinic in Giessen.) Rud. Th. v. Jaschke. Z. d. Bauver. Mar. 4, '25.

f. Factories and Mill Buildings

- Reconstruction of Dye-House at a Textile Mill.* Eng. N. R. Mar. 26, '25.
 Supports for Superimposed Stacks.* Walter W. Clifford. Bost. Soc. C. Engrs. May, '25.
 Reinforced-Concrete Wood-pulp Paper Mill in Oregon.* E. L. Williams. Eng. N. R. May 14, '25.
 Cantilever Floor Construction for Concrete Buildings.* Eng. N. R. May 21, '25.

g. Other Buildings

- Saving St. Paul's Cathedral.* J. Bernard Walker. Sci. Am. May, '25.
 Increasing Financial Efficiency by Simplification of Plant Design.* H. M. Vehling and H. S. Crawford. Power May 19, '25.
 Le Palais de la Foire de Lyon.* (The Exposition Palace for Lyon.) P. Calfas. Gen. Civ. Mar. 7, '25.

h. Roofs and Domes

- Roofs for Exposed Positions.* C. H. Cooper. Inst. Mun. & Co. Engrs. May 5, '25.
 The Light of Day in Roof Fenestration.* Wendell S. Brown. (From paper read before Illuminating Eng. Soc.) Enk. & Contr. May 27, '25.
 Eine statische Untersuchung des Turmhelmes des Freiburger Münsters.* (An Investigation of the Statics of the Spire of the Freiburg Cathedral. H. Fritz. Zeit. Bau. Pt. 1 (Hochbautell), '25.

x. Miscellaneous

- Mitteilungen aus verschiedenen Fachgebieten. Die Möglichkeit eines Eisenbetonstils.* (Communications from Various Technical Fields. The Possibility of a Reinforced Concrete Style of Architecture.) Oest. Ing. Arch. Ver. May 1, '25.
 Zum Bauschaffen Knobelsdorffs.* (The Architectural Works of Knobelsdorff.) Hermann Schmitz. Z. d. Bauver. May 13, '25.

O. Administration. Legislation. Economics. Statistics**b. Economic Questions of a General Character. Valuations**

- Checking Up on Profit During Construction.* Beardsley Lawrence. Eng. N. R. Mar. 26, '25.
 Valuation of Water Works for Municipal Purchase.* E. E. Bankson. Am. W. W. Assoc. May, '25.

d. Administrative and Financial Management of Means of Communication**3. Inland Navigation**

- Water-Borne Commerce of the Chicago Region and Its Requirements.* E. O. Griffenhagen. West. Soc. Engrs. Apr. '25.

4. Maritime Ports

- Port Administration and Organization.* F. T. Chambers. Mil. Engr. Mar.-Apr., '25.
 Le Port Autonome de Liverpool. (The Autonomous Port of Liverpool.) M. Blanquet. Ann. P. et C. Jan., '25.

5. Railroads and Street Railways

- Railway-Borne Commerce in the Chicago Region and Its Requirements. West. Soc. Engrs. Apr., '25.
 The Engineer as a Railroad Executive. Julius Kruttschnitt. Mech. Eng. May, '25.
 Waterway and Railway Equivalents. Discussion. William M. Black. Am. Soc. C. E. May, '25.

f. Engineering Ethics

- Outstanding Practice Problems of the Profession. D. B. Steinman. Eng. N. R. May 21, '25.

g. Engineering Education

- Der technologische Unterricht an der Technischen Hochschule München.* (Technological Instruction in the Munich Technical High School.) C. Prinz. Ver. deu. Ing. May 9, '25.
 Der Technologieunterricht an technischen Lehranstalten.* (Technological Instruction in technical schools.) Grunewald. Ver. deu. Ing. May 9, '25.
 Die Normung und der Unterricht an Technischen Schulen.* (Standardization and Teaching in technical schools.) C. Volk. Ver. deu. Ing. May 16 '25.

Q. Surveying and Geodesy

- Stereophoto Surveying from the Air.* Eng. N. R. Apr. 9, '25.
 Aerial Photographs, Surveys and Maps.* J. W. Pierce. (Paper read before Ontario Land Surveyors.) Can. Engr. May 12, '25.
 A Portable Tide Gauge for Engineers.* G. T. Rude. Mil. Engr. May-June, '25.
 Broader Aspects of Cadastral Engineering.* Frank M. Johnson. Mil. Engr. May-June, '25.
 Die geodätischen Grundlagen der Vermessungen im Kanton Thurgau.* (The Geodetic Bases of the Survey in the Canton of Thurgau.) H. Zoelly. Schw. Bauz. Serial beginning Apr. 25, '25.

R. Landscape Engineering

- Beautifying a Railroad System.* E. L. Chicanot. Land. Arch. Apr., '25.

S. City Planning

- The Influence of the Automobile on Regional Transportation Planning. George A. Damon. Am. Soc. C. E. Apr., '25.
 The Fundamentals of Terminal Building. Rufus W. Putnam. West. Soc. Engrs. Apr., '25.
 Zoning and Housing. Charles B. Ball. West. Soc. Engrs. Apr., '25.
 Proposed Causeway Between Rockaway Beach and Sandy Hook. N. Y.* William J. Wilgus. Mun. & Co. Eng. May, '25.

- Vorarbeiten für die Aufstellung eines Generalsiedlungsplanes für den Mitteldeutschen Industriebezirk.* (Preliminary Work for Drawing up a General Plan of Dwellings for the Industrial Region in Central Germany.) Stephan Prager. Zeit. Bau. Pt. 4 (Hochbautell), '25.
- Der neue Siedlungsplan für das Westsächsische Kohlengebiet.* (The New Plan for Dwellings for the West Saxon Coal Region.) Mackowsky. Zeit. Bau. Pt. 4 (Hochbautell), '25.
- Grossberliner Verkehrspläne. (Greater Berlin Traffic Plans.) Nonn. Z. d. Bauver. Apr. 29, '25.
- Neuordnung des Berliner Verkehrs mittels Strassendurchbrüchen.* (Rearrangement of Berlin Traffic by Cutting Through Streets.) Elkart. Z. d. Bauver. May 13, '25.
- Eine neue Verbindungsstrasse zwischen dem Platz am Bahnhof Zoologischer Garten und dem Hansaviertel in Berlin.* (A New Connecting Street Between the Square at the Zoological Garden Station and the Hanse District.) Klose. Z. d. Bauver. May 13, '25.
- Die Anlage altdeutscher Städte an Flussläufen.* (The Location of Old German Cities on Streams.) Hans Schwarz. Z. d. Bauver. May 20, '25.

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Employment Service

The Engineering Societies Employment Service is under the joint management of the National Societies of Civil, Mining, Mechanical, and Electrical Engineers as a co-operative Bureau available only to their membership, and maintained by the contributions from the Societies and their individual members who are directly benefited.

Men Available.—Under this heading, brief announcements will be published without charge. These announcements will not be repeated, except on request received after an interval of one month. Names and records will remain in the active files of the Bureau for a period of three months, and are renewable on request. Notice for *Proceedings* should be addressed to Employment Service, 33 West 39th Street, New York, N. Y., and should be received prior to the first of the month.

Opportunities.—A Bulletin of engineering positions available is published weekly and is available to members of the Societies concerned at a subscription rate of \$3 per quarter, or \$10 per annum, payable in advance. Positions which are not filled promptly as a result of publication in the Bulletin, may be announced herein.

Voluntary Contributions.—Members obtaining positions through the medium of this Service are invited to co-operate with the Societies in the financing of the work by nominal contributions made within thirty days after placement, on the basis of \$10 for all positions paying a salary of \$2 000 or less per annum; \$10 plus 1% of all amounts in excess of \$2 000 per annum; temporary positions (of one month or less), 3% of total salary received. The income contributed by the members, together with the finances appropriated by the four Societies named, will be sufficient, it is hoped, not only to maintain but to increase and extend the service.

Replies to Announcements.—Replies to announcements published herein, or in the Bulletin, should be addressed to the key number indicated in each case, with a two-cent stamp attached for re-forwarding, and forwarded to the Employment Service at the address given. Replies received by the Bureau after the positions to which they refer have been filled, will not be forwarded.

MEN AVAILABLE

CIVIL ENGINEER, Jun. Am. Soc. C. E., graduate; age 28; married. Eight years experience in design and construction of reinforced concrete and steel buildings of all types. At present employed as chief assistant to consulting engineer. Location, New York City or vicinity. A-625.

CIVIL ENGINEER, M. Am. Soc. C. E.; age 40. Twenty years' practical and educational engineering experience. At present, head of civil engineering department of large university. Available for summer. Experienced in railways, irrigation, hydro-electric, and electrical transmission work. Can handle reports, surveys, costs and statistics, bidding and estimating, or executive duties, also public relations and writing. A-1584.

STRUCTURAL ENGINEER, Jun. Am. Soc. C. E.; reinforced concrete, steel, timber;

fourteen years' experience. Available at once. A-2505.

CIVIL ENGINEER AND CONSTRUCTION SUPERINTENDENT, Jun. Am. Soc. C. E.; graduate C. E.; age 30. Thoroughly experienced in general structural engineering work. Desires immediate and permanent connection with consulting or contracting engineers. Available in thirty days. B-1069.

PAPER MILL ARCHITECT AND ENGINEER, Assoc. M. Am. Soc. C. E.; age 41; married. Experienced in paper, ground-wood, sulphite and sulphate mills, steam power plants and hydraulic developments. Prefers a position in New York City. B-4177.

CIVIL ENGINEER, M. Am. Soc. C. E., thoroughly acquainted with Spanish America; qualified to deal administratively

with important concerns, conduct successful negotiations. Specialty: Railways and roads, canals for irrigation, or hydro-electric power. Will accept responsible charge Central, South America, as technical assessor, or secretary to capitalist interested in concessions, investments. Recently dealing options in petroleum, water-power concessions. Connections in most South American capitals. B-4601.

STRUCTURAL ENGINEER, M. Am. Soc. C. E. Fifteen years' experience in design and construction of industrial buildings, reinforced and mass concrete, steel framing, pile foundations, wharves; ten years in responsible charge of work; five years' tropical experience. Speaks Spanish and French. Qualified to handle projects from preliminary studies to completion. Available at once. B-5283.

FIELD ENGINEER, Jun. Am. Soc. C. E.; Rensselaer graduate; age 29. Eight years' field and office experience, highways, railroads, steel and concrete bridges. Desires position as assistant to resident engineer on construction job. Now available. B-5820.

GRADUATE CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; M. Am. Ry. Eng. Assoc.; age 32; married. Eight years railway construction and maintenance, over four years responsible charge Pittsburgh District. Salary, \$300. Available on three weeks' notice. B-6313.

CIVIL ENGINEER, M. Am. Soc. C. E., with twenty years' experience in railway location, construction, and maintenance on the large systems of the United States and Latin-America, desires change. Has held positions as engineer, superintendent, and manager on large railway and power plant construction and operation. At present employed in Central America. Speaks and writes Spanish. B-6354.

CIVIL ENGINEER, M. Am. Soc. C. E.; technical graduate, 1904, degree C. E. Fourteen years on railroad and highway construction and design; two years editorial experience and five years in engineering teaching by correspondence. Desires position in engineering teaching or as office engineer. Available on short notice. Location, New York District preferred, but not necessary. B-6708.

CONSTRUCTION ENGINEER AND SUPER-INTENDENT, Assoc. M. Am. Soc. C. E.; graduate C. E.; age 36; married. Four years designing and estimating structural steel and reinforced concrete; four years construction of dams, power-house, mill buildings; six years in responsible charge of construction and maintenance of large oil refineries. Prefers Middle West or West. Prefers connection with contracting firm, but not essential. Available at once. B-7071.

EXECUTIVE, M. Am. Soc. C. E.; structural sales and estimating; now employed, wishes to change to similar position with opportunity for advancement. Especially good at training estimators and salesmen. Twenty years' experience, fourteen with one employer. Personal interview can be arranged. B-7445.

ENGINEER AND EXECUTIVE TO CONSULTING HYDRAULIC ENGINEER, Assoc. M. Am. Soc. C. E.; graduate Civil

Engineer; age 35; married; one child; seeks permanent connection. Several years' varied experience, rail, water-works, including highway work, engineering design and construction supervision. Responsible charge, water supply development, coastwise harbor developments, inland dredging operations, hydraulic studies, and extensive hydrographic surveys. B-7694.

CONSTRUCTION ENGINEER, Assoc. M. Am. Soc. C. E. Complete sewage disposal plant valued at \$3 000 000 placed in operation at Indianapolis, Ind. Resident engineer and superintendent of construction on this work will soon be available for other employment. Complete information together with references as to training and ability along construction lines will be gladly furnished on request. B-8776.

STRUCTURAL DESIGNER, Jun. Am. Soc. C. E.; graduate C. E., Johns Hopkins University. Four years' experience in design and drafting of industrial structures, steel and reinforced concrete for buildings and general engineering, including responsible charge. Desires permanent position offering advancement to capable man, with industrial concern, consulting engineer, or architect. Location immaterial. Now available. B-9707.

MINNESOTA CITY ENGINEER, M. Am. Soc. C. E.; age 40; with experience in land surveying, drainage, plant and municipal engineering and military service, desires position with firm of engineers or utility company. Location near New York, N. Y., or Philadelphia, Pa., preferred, but not essential. Salary \$3 300 to \$3 600. B-9712.

CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; married; age 39. Twenty years' experience on surveys, designs, and estimates for steel and concrete bridges, highways, sewers, and manufacturing plants. Desires permanent responsible position with consulting engineer or public works department. East preferred. Now employed, can leave on reasonable notice. B-9715.

CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; M. I. T. 1907; age 40; married. Eighteen years' experience in design and construction earth and masonry dams, irrigation, sewers, water-works, reinforced concrete, highways, and pavements. Past five years in highway work. Desires to return to hydraulic engineering with large engineering, contracting, or public utility organization. B-9730.

CIVIL ENGINEER, Jun. Am. Soc. C. E.; graduate C. E.; age 30; married. Three and one-half years' varied engineering experience, one-fourth year in responsible charge. At present, chief of party on government survey. Desires work with reliable engineer or contractor engaged in concrete design or construction. B-9735.

CIVIL ENGINEER, Jun. Am. Soc. C. E.; university graduate; age 27; available immediately for position with contractor, construction engineer, or as estimator with bar company. Two years field experience on general building construction; three years on engineering staff of bar company doing estimating, designing, and inspection of all types of reinforced concrete construction. B-9776.

DESIGNING ENGINEER, M. Am. Soc. C. E., specialty, concrete, reinforced concrete, foundations, sea walls, etc. Twenty years' thorough experience in buildings, plants, office, and field work. Speaks and writes English, German, and French. Desires position in permanent capacity with large engineering or contracting organization. Will consider connection with fire insurance or bonding companies. Engagement preferred in Pittsburgh Metropolitan District. B-9784.

STRUCTURAL ENGINEER, M. Am. Soc. C. E., with fifteen years' experience on details and design, mostly with fabricators; now employed, desires position offering larger opportunities, preferably with consulting engineer or architect. B-9794.

CIVIL ENGINEER, Jun. Am. Soc. C. E.; graduate, Kansas University 1922; age 25; married. One year, assistant county engineer; two years, county engineer in responsible charge road and bridge work. Wants work with large contracting firm with opportunity to become superintendent or estimator. Good technical educational preparation and executive experience. Salary consideration secondary to opportunity. Available now. B-9829.

CIVIL ENGINEER, Assoc. M. Am. Soc. C. E.; 1913 graduate leading technical school; age 33; married. Seven years' varied and valuable structural experience. An additional five years and at present on structural staff of leading university. Desires responsible and permanent position having good prospects with private firm or university. Location in East preferred, but not essential. Now available. B-9858.

SALES, M. Am. Soc. C. E.; graduate Civil Engineer. Fifteen years' civil engineering experience, mostly construction of factories, mills, coke plants, office buildings. Has maintained Pittsburgh office for past eighteen months as sales representative, desires additional accounts in which experience will be of service in sale of products in this territory. B-9946.

CIVIL ENGINEER, Jun. Am. Soc. C. E.; graduate Johns Hopkins; age 24; married. Three years' experience in land drainage and rural and institutional sanitation. Has been in responsible charge of work. At present employed in the Near East. Desires position in connection with any branch of sanitary engineering work. Available after October 1, 1925. Location, United States. C-65.

Membership

(From April 1, to June 30, 1925)

Additions

		Date of Membership.
AASS, Asbjorn Hjalmar. Care, Dwight P. Robinson & Co., 125 East 46th St., New York, N. Y.	Assoc. M.	June 1, 1925
ADAMS, Frank. Prof. of Irrig. Investigations and Practice, Univ. of California, Berkeley, Calif.	M.	June 1, 1925
ANDERSON, Lyttleton Cooke. Asst. Gen. Mgr., Nashville Bridge Co., Nashville, Tenn.	Assoc. M.	Sept. 12, 1921
ANDERSON, Paul. Draftsman. Am. Bridge Co., Pencoyd (Res., 216 Rochelle Ave., Wissahickon, Philadelphia), Pa.	M.	Mar. 16, 1925
	Jun	June 1, 1925
BAHJEJIAN, Kevork Parsegh. In Chg., Valuation Dept., East Penn Elec. Co., Pottsville, Pa.	Jun.	April 20, 1925
BECKER, Carlton Hewitt. Draftsman, Pearse, Greeley & Hansen, Chicago (Res., McLean Boulevard, Route 3, Elgin), Ill.	Jun.	Mar. 16, 1925
BECKWITH, Homer Eugene. Engr. in Chg., The Pitometer Co., 50 Church St., New York, N. Y. (Res., 1533 Burdett Court, Cincinnati, Ohio)	Assoc. M.	June 1, 1925
BELL, Charles Hindmarsh. Care, Pearse, Greeley & Hansen, 6 North Michigan Boulevard, Chicago, Ill.	Assoc. M.	June 1, 1925
BENNETT, George Spotswood. With Valuation Staff, Murrie Eng. Co., 221 Seaman Ave., New York, N. Y.	Assoc. M.	April 20, 1925
BIERSCHENK, Harry Eugene. 80 Maple St., Brooklyn, N. Y.	Jun.	June 1, 1925
BINCKLEY, Milton Johnstone. Chf. of Party, Southern California Gas Co. (Res., 7831 Hillside Ave.), Los Angeles, Calif.	Jun.	April 20, 1925
BLAKELY, William Roy. Bridge Dept., Ill. Cent. R. R., Chicago, Ill.	Jun.	April 20, 1925
BLANCHARD, Rollo Kimball. Asst. Secy. and Engr., Neptune Meter Co., 50 East 42d St., New York, N. Y.	Assoc. M.	Mar. 13, 1917
BOMAR, John Earle. Res. Engr., Transmission Line, Stone & Webster, Inc., Box 1098, Columbus, Ga.	M.	April 21, 1925
	Assoc. M.	Oct. 8, 1918
BOWEN, Oliver Gilbert. Structural and Cons. Engr., 620½ West 6th St., Los Angeles, Calif.	Assoc. M.	June 1, 1925
BOYER, Clarence Leonard. Asst. Engr., N. Y. C. R. R., 130 East Harrison St., Maumee, Ohio.	M.	June 1, 1925
BRIGGS, James Harvey. Sales Engr., Texas Trap Rock Co., 221 Texas Bank Bldg., San Antonio, Tex.	Assoc. M.	Mar. 16, 1925
BRITE, Hector Leigh. Engr. and Contr. (Res., 3 Parkwood Pl., Cincinnati, Ohio)	Affiliate	Mar. 16, 1925
BROOKS, Ernest Ramsden. Second Asst. Surv., Dept. of Public Works (Res., 1514 Glenwood Ave.), Philadelphia, Pa.	Jun.	April 20, 1925
BROWN, Harold Stanton. 137 California Ave., Highland Park, Mich.	Jun.	April 20, 1925
BROWN, Thomas Dwight. Res. Engr., State Highway Comm., Box 774, Monroe, La.	Jun.	Mar. 16, 1925
BRYAN, Charles Walter, Jr. Civ. Engr., Federal Shipbuilding Co. (Res., 626 Bergen Ave.), Jersey City, N. J.	Jun.	April 20, 1925
	M.	April 20, 1925
CADY, Reed William. 158 Falconer St., North Tonawanda, N. Y.	M.	June 1, 1925
CARNEY, George Francis. Draftsman, County Surv. (Res., 1661 Leavenworth St.), San Francisco, Calif.	M.	June 1, 1925
CHASE, Edward Sherman. San. Engr., Metcalf & Eddy, 14 Beacon St., Boston, Mass.	Jun.	Mar. 16, 1925
CHRISTIANSEN, Harry. Special Layout Engr., Dept. of Public Works (Res., 1266 Frederick Ave.), Milwaukee, Wis.	Assoc. M.	May 31, 1916
	M.	April 21, 1925
CLAPP, Henry Bennett, Jr. Rodman, Board of Water Supply of New York City, 21 South 15th Ave., Mount Vernon, N. Y.	Assoc. M.	April 20, 1925
CLAUS, William. Engr., M. of W., Cumberland & P. R. R. (Res., 43 Windsor Rd.), Cumberland, Md.	Jun.	April 20, 1925
CONQUEST, Edwin Parker. Secy. and Treas., J. R. Jones, Inc., 619 Am. National Bank Bldg., Richmond, Va.	M.	April 20, 1925
CONRAD, Cuthbert Powell. Hydr. Engr., São Paulo Tramway, Light & Power Co., Caixa de Correio (a), São Paulo, Brazil.	Assoc. M.	June 1, 1925
CONSOER, Arthur William. Vice-Pres. and Gen. Mgr., Consoer, Older & Quinlan, Inc., 140 South Dearborn St., Chicago (Res., 404 Fairview Ave., Park Ridge), Ill.	Assoc. M.	Jan. 17, 1921
	M.	April 21, 1925
CORREALE, William Herbert. Care, Sanderson & Porter, Cheat Haven, Pa.	Assoc. M.	Mar. 9, 1920
	M.	April 21, 1925
CORRY, Patrick M. With Warren & Wetmore (Res., 343 East 239th St.), New York, N. Y.	Jun.	Mar. 16, 1925
CORSON, Alan. Chf. Engr. to Comms. of Fairmount Park (Res., Ridgeland, West Park), Philadelphia, Pa.	M.	June 1, 1925
	M.	April 20, 1925

MEMBERSHIP—(Continued)

			Date of Membership.
CRAWFORD, Ivan Charles.	Dean, Coll. of Eng., Univ. of Idaho, Moscow, Idaho.	Jun. Assoc. M. M.	Mar. 2, 1915 Jan. 14, 1918 Mar. 16, 1925
CRESS, Eldred Everett.	Asst. Engr. of Tests, Joint Committee on Stresses in R. R. Track, 403 Ells Ave., Champaign, Ill.	Assoc. M.	June 1, 1925
CRUZ, Mamerto.	Care, Bureau of Public Works, Manila, Philippine Islands.	Assoc. M.	June 1, 1925
DARROW, Warren Edwin.	Designing Engr., Corps of Engrs., U. S. A., Okeechobee, Fla.	M.	June 1, 1925
DAUCHY, Frederick Burr.	Chf. of Party, Davidson & Fulmor (Res., 278 New Magnolia Ave.), Riverside, Calif.	Jun. Assoc. M.	June 9, 1923 June 1, 1925
DAVIN, Joseph William.	1637 Oak St., Jacksonville, Fla.	Jun.	Mar. 16, 1925
DAVIS, Albion.	Hydr. Engr., Mississippi River Power Co. (Res., 316 Fulton St.), Keokuk, Iowa.	M.	April 20, 1925
DECKER, Asbury Clinton.	San. Engr., Tennessee Coal, Iron & R. R. Co., Brown Marx Bldg., Birmingham, Ala.	M.	April 1, 1925
DE LIMA CAMPOS, Arthur Frago.	Chf. Engr., Reclamation Service of Brazil, 36, rua Humayta 36, Rio de Janeiro, Brazil.	Assoc. M.	Mar. 16, 1925
DOERING, Aloysius Henry.	Chf. Engr. and Gen. Mgr., Carl W. Shimp Co. (Res., 715 Walnut St.), Martins Ferry, Ohio.	M.	June 1, 1925
DONOHUE, Edward Brown.	Chf. of Party and Insp., State Highway Comm., Box 191, Harlem, Mont.	Assoc. M.	April 20, 1925
DUFFY, James Merritt.	Municipal Engr. (Carpenter & Duffy), 33 East Post Rd., Mamaroneck, N. Y.	Assoc. M. Jun.	June 1, 1925 April 20, 1925
DUST, Carl Theodore.	220 North Michigan Ave., Saginaw, Mich.	Jun.	April 20, 1925
EIDMANN, Otto Jacob.	Engr. of Design, State Highway Comm. (Res., 1188 Boswell Ave.), Topeka, Kans.	Assoc. M.	Dec. 15, 1924
ELDER, Charles Birge.	Supt., Henry W. Horst Co., Brockwayville, Pa.	Assoc. M.	April 20, 1925
ENNIS, William Joseph.	Deputy Bldg. Commr., Dept. of Bldg. Inspection (Res., 62 Sharon St.), Hartford, Conn.	Assoc. M.	June 1, 1925
FELT, Hall Merle.	Draftsman, City of Long Beach Eng. Dept. (Res., 747 New York St.), Long Beach, Calif.	Jun.	June 1, 1925
FUCHS, George Alexander.	Junior Asst. Engr., Grade 1, Bronx Parkway Comm., Bronxville (Res., 1159 Fifty-second St., Brooklyn, N. Y.)	Jun.	June 1, 1925
FULLER, Robert Benjamin.	Care, J. E. Sirrine & Co., Greenville, S. C.	Assoc. M.	April 20, 1925
GALLAGHER, Leonard Bruce.	Capt., Corps of Engrs., U. S. A.; Asst. Prof., Military Science and Tactics, Yale Univ., Artillery Hall, New Haven, Conn.	Jun. Assoc. M.	Dec. 2, 1914 Dec. 15, 1924
GALLANCY, William.	220 North Michigan Ave., Saginaw, Mich.	Jun.	April 20, 1925
GARRETT, Blinn Kimbrough.	Maintenance Supt., Div. No. 5, State Highway Dept., Box 463, Lubbock, Tex.	Jun.	Dec. 15, 1924
GASTMEYER, Robert William.	Mgr., New York Office, Pittsburgh Bridge & Iron Works, 2 Rector St., New York, N. Y.	Assoc. M.	Dec. 15, 1924
GHENT, Pierre Mowell.	Chestnut Park Ave., Govans, Baltimore, Md.	Jun.	Jan. 19, 1925
GIFFIN, Harold Wendell.	Div. Constr. Engr., State Highway Dept., Trenton (Res., 132 Horace St., Woodbury), N. J.	Assoc. M.	April 20, 1925
GIONGO, Guido Leone.	52 Livingston St., Brooklyn, N. Y.	Jun.	June 1, 1925
GLENN, William David.	Estimator, Rock City Constr. Co., 150 Fourth Ave., N. Nashville, Tenn.	Jun.	April 20, 1925
GORIA, Hubert.	Civ. Engr., 14 Avenida Norte 25, San Salvador, Salvador.	Assoc. M.	Dec. 15, 1924
GOURLEY, Harold John Frederick.	Cons. Civ. Engr. (Sir Alex. Binnie Son & Deacon), 30 Buckingham Gate, London, S. W. 1, England.	M.	Mar. 16, 1925
GREENLEAF, Harold.	(Greenleaf Constr. Co.), 1706½ Second Ave., Rock Island, Ill.	Assoc. M.	Dec. 15, 1924
GRIFFIN, Carroll.	Vice-Pres., Griffin Constr. Co., 608 Bona Allen Bldg., Atlanta, Ga.	Affiliate M.	June 1, 1925 June 1, 1925
GRIMES, Maurice Wason.	312 Chestnut St., Audubon, N. J.	Assoc. M.	Mar. 16, 1925
GRUT, Ryan Asger.	Chf. Engr., Truscon Steel Co., 2 000 Miramar, Los Angeles, Calif.	Jun.	Mar. 16, 1925
GWYTHER, Valentine Mackenzie William.	Care, Mrs. F. A. Coombs, 1348 Robson St., Vancouver, B. C. Canada.	Jun.	Mar. 16, 1925
HAMILTON, James Baker.	Instr., Civ. Eng., Univ. of Washington, 316 Thirty-second Ave., Seattle, Wash.	Assoc. M.	April 20, 1925
HAMMELEF, Peter Christensen.	Care, Connell, Laub & Bracht, Titusville, Pa.	Assoc. M.	June 1, 1925
HANNEVOLD, Peder Louis.	Technical Director of Drainage Works, Colonia Alvear Irrig. Dist., Bartolomé Mitre 475 II Buenos Aires, Argentine Republic.	Assoc. M. Jun.	Jan. 19, 1925 April 20, 1925
HARVEY, Gordon White.	171 Slade St., Belmont, Mass.	Jun.	April 20, 1925

MEMBERSHIP—(Continued)

		Date of Membership.
HATTON, Frank Ball. Asst. Engr., Milwaukee Sewerage Comm., 508 Market St. (Res., Carlton Hotel), Milwaukee, Wis.	Assoc. M.	April 20, 1925
HAVENS, William Louis. Associate with George B. Gascoigne, 1149 Leader News Bldg., Cleveland, Ohio.	Jun. Oct. 10, 1916	
	Assoc. M.	Mar. 7, 1921
	M.	Mar. 16, 1925
HAYDOCK, Charles. Vice-Pres. and Gen. Mgr., Lansdale Foundry Co., Lansdale, Pa.	Jun. June 4, 1913	
	Assoc. M.	Nov. 28, 1916
	M.	April 21, 1925
HEDLUND, Willard. Associate Dean of Eng. School, Northeastern Evening Eng. Inst.; Asst. Mgr. of Constr., Edward F. Miner Bldg. Co., 208 Lincoln St., Worcester, Mass.	M.	June 1, 1925
HENDERSON, Norman Percy. Asst. City Engr. (Res., 27 Beechwood Terrace), Yonkers, N. Y.	M.	April 20, 1925
HENDRICK, Thomas Kelley Anthony. Instr. in Eng. Mechanics, Yale Univ. (Res., 51 Prospect St.), New Haven, Conn.	Assoc. M.	June 1, 1925
HESS, Seth Gerson. Asst. Engr., Alexander Potter, 50 Church St. (Res., 500 Cathedral Parkway), New York, N. Y.	Assoc. M.	April 20, 1925
HIRSCHHORN, Louis Nathan. 456 Bedford Ave., Brooklyn, N. Y.	Jun. Oct. 21, 1924	
HOGOBOOM, William Coryell. Structural Engr., Bridge Dept., City of Los Angeles (Res., 1022 North Wilcox Ave.), Los Angeles, Calif.	Assoc. M.	June 1, 1925
HOLDEN, Charles Alexander. With Gavin Hadden, 280 Madison Ave., New York (Res., 47 Washington Ave., New Rochelle), N. Y.	Assoc. M.	Feb. 28, 1911
HOLMGREN, Richard Sigfrid. Designing Engr., L. H. Shattuck, Inc., 208 Granite St., Manchester, N. H.	M.	Mar. 16, 1925
HOSMER, George Leonard. Associate Prof., Civ. Eng. Dept., Mass. Inst. Tech., Room 1-239 Mass. Inst. Tech., Cambridge (Res., 280 Washington St., Woburn), Mass.	Assoc. M.	June 1, 1925
HUBBARD, Howard Broumel. 9 East 39th St., New York, N. Y.	M.	April 20, 1925
HUCKABY, Marion Columbus. Dist. Engr., Southern Surety Co., 104 North 4th St., St. Louis, Mo.	Jun. April 20, 1925	
	Jun. Oct. 9, 1917	
	Assoc. M.	April 19, 1920
	M.	April 21, 1925
HUDSON, Herbert Edison. Asst. Chf. Engr., Sewers, City of Chicago, 6932 Olcott Ave., Chicago, Ill.	M.	Dec. 15, 1924
IMHOFF, Karl. Chf. Engr., "Ruhr-Verband," Ruhrverband, Kronprinzen St. 37, Essen, Germany.	M.	Jan. 19, 1925
JADWIN, Edgar. Asst. Chf. of Engrs., U. S. A., 2802 Munitions Bldg., Washington, D. C.	M.	April 20, 1925
JAMES, Roger Thomas. Civ. Engr., 1706 Elizabeth Ave., Charlotte, N. C.	Assoc. M.	Dec. 15, 1924
JENNE, Lyle Loren. San. Engr., Bureau of Water, 796 City Hall, Philadelphia, Pa.	Assoc. M.	June 1, 1925
JOHNS, Charles White. Chf. Engr., C. & O. Ry., Gen. Offices C. & O. Ry., Richmond, Va.	M.	June 1, 1925
KATKORIA, Chhabildas Rughunathji. Superintending Engr., G. I. P. Ry., Camp Kamshet, P. O. Khadkala via Lonavla, District Poona, India.	Jun. Mar. 12, 1923	
	Assoc. M.	Mar. 16, 1925
KAUPKE, Charles Lewis. Engr., State Div. of Water Rights, 1302 Pacific Southwest Bldg., Fresno, Calif.	Assoc. M.	April 20, 1925
KEATING, Edmund Bernard. Lieut., C. E. C., U. S. N., U. S. Navy Yard, Pearl Harbor, Hawaii.	M.	Mar. 16, 1925
KEIRLE, Clifford Charles. Res. Engr., Bruce & Grupe, 710 Bankers Reserve Life Bldg., Omaha, Nebr (Res., Broadway Hotel, Sparta, Ill.)	Assoc. M.	Oct. 21, 1924
KEITH, Scott. Asst. Engr., Metcalf & Eddy, 14 Beacon St., Boston (Res., 20 Hartford St., Newton Highlands), Mass.	Assoc. M.	Mar. 16, 1925
KLEYN, Cyril Frederick. Asst. Engr., Wayne County Road Comms., 193 Gregory Ave., W. Dearborn, Mich.	Assoc. M.	June 1, 1925
KRAEMER, Leo. 4415 Malden St., Chicago, Ill.	Affiliate	June 1, 1925
KRAFFT, Robert Ferdinand. Asst. Hydr. Engr., Great Western Power Co. (Res., 364 Eddy St.), San Francisco, Calif.	Assoc. M.	Mar. 16, 1925
KRAMER, Hans. Lieut., Corps of Engrs., U. S. A., Care, 11th Engrs., Corozal, Canal Zone, Panama.	Jun. Nov. 25, 1919	
	Assoc. M.	Dec. 15, 1924
LASSITER, Leroy Irving. 226 Hillsboro St., Raleigh, N. C.	Jun. Dec. 15, 1924	
LASSITER, Richard Thornton. 120 Pine Ave., Kane, Pa.	Jun. Mar. 16, 1925	
LAXTON, William Wallace. Engr., Portland Elec. Power Co. (Res., 1006 Main St.), Oregon City, Ore.	Assoc. M.	Mar. 16, 1925
LEGRAND, James. 217 Warren St., Suite 19, Allston, Mass.	Assoc. M.	June 1, 1925
LENECEK, Jarry Anthony. 8201 Thirteenth Ave., Brooklyn, N. Y.	Assoc. M.	June 1, 1925
LEVIN, Abraham. Asst. Engr., Office, Pres., Borough of Queens, Borough Hall, Long Island City (Res., 678 Second Ave., New York), N. Y.	Jun. Nov. 21, 1921	
	Assoc. M.	April 20, 1925
LUNDAHL, Raymond Rudolph. Asst. Engr., Sewerage Comm. of Milwaukee (Res., 411 Forty-sixth St.), Milwaukee, Wis.	Assoc. M.	Jan. 19, 1920
	M.	April 21, 1925
LYMAN, Richard Roswell. Civ. and Cons. Engr. (Lyman & Pack), 47 East South Temple St., Salt Lake City, Utah.	Affiliate May 4, 1904	
	Assoc. M.	Feb. 2, 1909
	M.	April 21, 1925

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MEMBERSHIP—ADDITIONS

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MEMBERSHIP—(Continued)

Date of
Membership.

LYNCH, John Francis. Box 785, New Haven, Conn.	Assoc. M. M.	Nov. 28, 1916 April 21, 1925
MAHONE, Francis Douglas. 308 Union Oil Bldg., Los Angeles, Calif.	Assoc. M. M.	Jan. 17, 1921 April 21, 1925
MARKS, Edward. Eng. Draftsman, Milwaukee Sewerage Comm., 508 Market St., Milwaukee (Res., 906 South Pleasant St., Kenosha), Wis.	Jun.	Jan. 19, 1925
MARSH, Harold Henry. Civ. and Structural Engr., 720 Colorado Bldg., Washington, D. C.	M.	June 1, 1925
MARSH, Jesse Ogden. Chf. Engr., Board of Public Utilities, City of Los Angeles, Room 23, City Hall, Los Angeles, Calif.	M.	June 1, 1925
MELICK, Cyrus Alan. Bridge Engr., State Highway Dept., New State Office Bldg., Lansing (Res., 811 East Grand River Ave., East Lansing), Mich.	M.	April 20, 1925
MIDOLO, Mario John. Field Engr., Baker Asphalt Co. (Res., 1724 Milfin St.), Philadelphia, Pa.	Jun.	Dec. 15, 1924
MILLARD, Bryant Tilden. Chf. of Party, Constant Angle Arch Dam Co., 795 Gray St., Oroville, Calif.	Assoc. M. Jun.	Mar. 16, 1925 Oct. 15, 1923
MILLS, Robert Rourke. Engr., Eng. Dept., Manitowoc Portland Cement Co., 633 North 6th St., Manitowoc, Wis.	Assoc. M.	Jan. 19, 1925
MITCHELL, Lester Morris. With Whitney Brothers Co., 305 North 12th Ave., East, Duluth, Minn.	Assoc. M.	June 1, 1925
MITCHELL, Thomas Crawford, Jr. Sales Engr., Western Metal Mfg. Co., Houston (Res., 622 Liberty St., Corpus Christi), Tex.	Assoc. M.	Mar. 16, 1925
MOBERG, Charles Willard. Instrumentman and Res. Engrs., S. P. R. R. of Mexico, Care, E. B. Sloan, Tepic, Nayarit, Mexico.	Assoc. M.	Mar. 16, 1925
MOCK, Wesley Charnock. Valuation Engr., Oregon-Washington R. R. & Navigation Co., 324 Pittcock Bk., Portland, Ore.	M.	Dec. 15, 1924
MOULTON, George Lewis. Cons. Engr., 217 Alston Bldg., Tuscaloosa, Ala.	Assoc. M. M.	Mar. 16, 1925 June 1, 1925
MUHS, Clifford Collin. 6742 Lakewood Ave., Chicago, Ill.	Assoc. M.	Mar. 16, 1925
MULLICAN, NaAmon Spencer. Municipal and Highway Engr., Walnut Cove and Winston Salem, N. C., Walnut Cove, N. C.	Assoc. M.	Mar. 16, 1925
MYLCHREEST, George Lewis. Cons. Engr. and Archt. (Mylchreest & Reynolds), 238 Palm St., Hartford, Conn.	Assoc. M.	June 1, 1925
NEUBERGER, Edmond Frederick. 82 Myrtle Ave., Plainfield, N. J.	Jun.	April 20, 1925
NICKERSON, Ralph Waldo. With Am. Bridge Co., 50 Church St., New York, N. Y.	M.	April 20, 1925
O'HARE, Francis Aloisius. Pres., Frank A. O'Hare Co., Inc., 270 Madison Ave., New York, N. Y.	M.	April 20, 1925
ONDERDONK, Arthur. Civ. Engr., Const. Quartermaster's Office, Quarry Heights, Canal Zone, Panama.	Assoc. M. M.	Jan. 6, 1915 Mar. 16, 1925
OTWAY, Percy Macewan. Res. Engr., Glasgow-Edinburgh New Road, Bathgate-Broxburn Sections, Dechmont near Uphall, Scotland.	M.	Dec. 15, 1924
OWEN, Ernest Valentine. 305 East Broad St., Bethlehem, Pa.	Assoc. M.	Mar. 16, 1925
PAULSON, Frederick Holroyd. Eng. Draftsman, F. P. Sheldon & Son (Res., 174 Cleveland St.), Providence, R. I.	Jun.	Dec. 15, 1924
PAYNE, John Bayly, Jr. Draftsman, Tex. & Pac. Ry., 3839 Maplewood Ave., Dallas, Tex.	Jun.	June 1, 1925
PERRY, Arthur Franklin, Jr. Supt., O. P. Woodcock, 421 Duval Bldg., Jacksonville, Fla.	Jun. Assoc. M.	Nov. 27, 1917 June 1, 1925
PETTY, Olive Scott. Structural Designer, R. O. Jameson, 1005 Southwestern Life Bldg., Dallas, Tex.	Assoc. M.	Jan. 19, 1925
PLANTZ, Ernst Leopold. Asst. Engr., Milwaukee Sewerage Comm., 508 Market St., Milwaukee (Res., 278 Cedar St., Wauwatosa), Wis.	Assoc. M. M.	Jan. 19, 1920 April 21, 1925
PHILLIPS, James Emerson. Draftsman and Asst. Engr., Los Angeles City Water Dept., 207 South Broadway, Los Angeles, Calif.	Assoc. M.	Mar. 16, 1925
PLATTE, Frederick Adolph. Instr. in Mechanics, School of Mines, Eng. and Chemistry, Columbia Univ. (Res., 1610 University Ave.), New York, N. Y.	Jun.	April 20, 1925
PONSY, Karl William. Draftsman, San Joaquin River Water Storage Dist., Los Banos (Res., 2517 Durant Ave., Berkeley), Calif.	Jun.	April 20, 1925
PORTER, James Walter. 612 Calcasieu Bldg., San Antonio, Tex.	Jun.	Dec. 15, 1924
POTTS, C. Harris. Tracer, Christopher H. Snyder, 251 Kearny St. (Res., 1448 Union St.), San Francisco, Calif.	Jun.	June 1, 1925
RALPH, Herman Philip. Designing Engr., Rudolph P. Miller, 25 West 45th St., New York (Res., 60 Shipherd Ave.), Lynbrook, N. Y.	M.	April 20, 1925
RAYNER, Adrien Booker. Executive Engr., Indian Service of Engrs., Balloki, District Lahore, Punjab, India.	Assoc. M.	Mar. 16, 1925

MEMBERSHIP—(Continued)

		Date of Membership.
REDDICK, Harry Ernest. Civ. Engr. and Surv., also City Engr., Santa Paula, Calif.....	Assoc. M. June 1, 1925	
REEVES, Glenn Stanton. Asst. Chf. Engr., North Jersey Transit Comm., 1 Newark St., Hoboken, N. J.....	Assoc. M. Mar. 16, 1925 Jun. Dec. 6, 1915	
RICHARDS, Walter Alan. City Mgr., Columbus, Ga.....	Assoc. M. June 1, 1920 M. April 21, 1925	
RIFKINSON, Marcus Aaron. Squad Leader, Elec. Bond & Share Co., 65 Broadway, Room 2106 (Res., 2040 Seventh Ave.), New York, N. Y.....	Jun. Jan. 15, 1923 Assoc. M. April 20, 1925	
RITTMASER, Oscar. Associated with C. R. Sumner, 635 H. W. Hellman Bldg., Los Angeles, Calif.....	Assoc. M. Mar. 16, 1925	
ROBERTSON, Guy Allan. 1117 South 32d St., Omaha, Nebr.....	Assoc. M. June 1, 1925	
ROHDENBURG, Walter Carl. Box 25, Haworth, N. J.....	Assoc. M. June 1, 1925	
ROPER, Fremont Emerson. Supt. of Constr. and Asst. Mgr., Sales Constr. and Maintenance Dept., Standard Oil Co., 225 Bush St., San Francisco, Calif.....	Assoc. M. June 1, 1925	
RUBERT, John Louis. Prin. Asst. Engr., William H. Boardman (Res., 4824 Sydenham St.), Philadelphia, Pa.....	M. June 1, 1925	
RUDOLPH, Paul Jackson. Antelope, Tex.....	Jun. June 1, 1925	
SAMUEL, Alfred Frederick, Jr. Structural Draftsman, Bridge Div., Bureau of Surveys (Res., 1412 South 24th St.), Philadelphia, Pa.....	Jun. April 20, 1925	
SCOTT, Warren Joseph. Director, Bureau of San. Eng., State Dept. of Health (Res., 4 Vine St.), Hartford, Conn.....	Assoc. M. June 1, 1925	
SEAMAN, Milton Bennett. 57 North Main St., Freeport, N. Y.....	Jun. Oct. 21, 1924	
SEVERUD, Fridtjov Nicholai. Draftsman, James B. French, 50 Church St., New York (Res., 7404 Thirteenth Ave., Brooklyn), N. Y.....	Jun. Dec. 15, 1924	
SHAFFER, Leonard. With Truscon Steel Co., 1505 Race St., Philadelphia, Pa.....	Assoc. M. April 20, 1925	
SHEEHAN, Bernard Geoffrey. Asst. City Engr., 4 Fort Villas, Cobh, Cork, Ireland.....	Jun. Dec. 15, 1924 Jun. April 19, 1920	
SIMPSON, Herman Nathaniel. 8204 South Ada St., Chicago, Ill.....	Assoc. M. Dec. 15, 1924	
SINGER, Roy Monroe. Cons. Engr., 5109 Kenmore Ave., Chicago, Ill.....	Jun. Nov. 26, 1923 Assoc. M. April 20, 1925	
SLY, Clarence Jefferson. 638 Miranda St., Oakland, Calif.....	Assoc. M. Dec. 15, 1924	
SOMERVELL, Brehon Burke. Maj., Corps of Engrs., U. S. A., 39 Whitehall St., New York, N. Y.....	M. Mar. 16, 1925	
STEELE, Garland F. 123 Central Ave., Atlanta, Ga.....	Jun. Jan. 19, 1925	
STEINMETZ, William John. Draftsman, Northern Peru Min. & Smelting Co., Trujillo, Peru.....	Jun. Dec. 6, 1920 Assoc. M. Dec. 15, 1924	
STEPHENSON, Paul Eugene. 222 Eleventh St., Apartment 1, Milwaukee, Wis.....	Jun. Dec. 15, 1924	
STEWART, Alexander Cameron. 220 Golden Gate Ave., San Francisco, Calif.....	Jun. April 20, 1925	
STODDARD, Alexis Erling. Asst. Engr. of Materials, Div. of Highways, State of Illinois, 100 East Washington St., Springfield, Ill.....	Assoc. M. Dec. 15, 1924	
STREIFF, Abraham. Cons. Engr., 115 South St., Jackson, Mich.....	Assoc. M. Mar. 16, 1925	
STRIBLING, Joseph Norton. Res. Engr., Southern Power Co., Charlotte, N. C.....	Assoc. M. April 20, 1925	
STURTEVANT, Merrill Houston. Draftsman, De Grasse Paper Co., Pyrites (Res., 1434 Midland Ave., Syracuse), N. Y.....	Jun. Mar. 16, 1925	
SULLIVAN, Edmund Carey. Asst. San. Engr., U. S. Public Health Service, 370 Seventh Ave., Room 1551, New York, N. Y.....	Assoc. M. April 20, 1925	
THOMSON, Harold Arthur. 831 South 59th St., Philadelphia, Pa.....	Assoc. M. Jan. 19, 1925	
TINEY, Brown Charles. Maintenance Engr., State Highway Dept. (Res., 900 South Pennsylvania Ave.), Lansing, Mich.....	Assoc. M. June 1, 1925	
TONG, Yung Tso. Engr., Peking & Suiyuan Ry., No. 1 Pu Tu Sze, Chien Hsiang, Nan Chih Tzu, East City, Peking, China.....	Jun. Mar. 14, 1916 Assoc. M. Dec. 15, 1924	
TOWNSEND, Darwin Wadsworth. Asst. to Chf. Engr. and Acting Chf. Engr., Sewerage Comm., 508 Market St., Milwaukee, Wis.....	Assoc. M. Nov. 25, 1919 M. April 21, 1925	
TOWSLEY, Irving Sidney. Structural Engr., Wm. H. Gravel, North Glenside, Pa.....	Jun. Mar. 7, 1921 Assoc. M. Mar. 16, 1925	
TRAMP, George Dewey. Project Engr., State Highway Dept. Lansing, Mich.....	Jun. June 1, 1925	
VAN PRAAG, Alex, Jr. Cons. Engr. (Holbrook, Warren & Van Praag), 416 Millikin Bldg., Decatur, Ill.....	Assoc. M. Mar. 16, 1925	
VAUGHT, Walter Augustus. Prin. Asst. to James R. Rhyne, Box 81, Corning, Ark.....	Assoc. M. June 1, 1925	
VAUPEL, John Leyson. Sales Engr., Bethlehem Steel Co., Bethlehem, Pa.; Res., 1930 Beacon St., Brookline, Mass.....	Jun. April 20, 1925	
WALKER, Leon Francis. Res. Engr., State Div. of Highways, Box 315, Oblong, Ill.....	Jun. Mar. 16, 1925	

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MEMBERSHIP—(Continued)

Date of
Membership.

WATSON, Thomas Paul. Asst. Engr., Eng. Dept., P. R. R., 1155 Liberty Ave., Pittsburgh, Pa.	M.	April 20, 1925
WEAVER, Charles Raymond. 38 Gramercy Park, New York, N. Y.	M.	Dec. 15, 1924
WEBSTER, Arthur Lake. Surv. and Engr., Box 352, Wheaton, Ill.	M.	April 20, 1925
WEISS, Theodore Francis. 1078 Longfellow Ave., New York, N. Y.	Jun.	Dec. 15, 1924
WHEAT, Winston Earl. Chf. Engr. of Paved Roads and Bridges, Escambia County (Res., 1524 East Blount St.), Pensacola, Fla.	Assoc. M.	June 1, 1925
WHITE, Chris. Asst. to Mgr., California Fireproof Door Co., 1931 South Los Angeles St., Los Angeles (Res., 460 West Lexington Drive, Glendale), Calif.	Assoc. M.	Mar. 16, 1925
WHITE, Leon Vincent. Asst. Prof., Civ. Eng., Kansas State Agri. Coll., Manhattan, Kans.	Assoc. M.	Mar. 16, 1925
WICK, William Samuel Joseph. Cons. Engr. (W. S. J. Wick & Co., Inc.), 32 Broadway, New York, N. Y.	M.	June 1, 1925
WILEY, James Harold. Box 41, Bismarck, N. Dak.	Jun.	Dec. 15, 1924
WILLIAMS, Thomas William. Chf. Engr., Union St. Ry., Box 549, New Bedford, Mass.	Assoc. M.	June 1, 1925
WOOD, Eugene North. Cons. Engr. (Wood & Witten), 247 Lynch Bldg., Tulsa, Okla.	Assoc. M.	Oct. 14, 1919
WYLIE, John M., Jr. Box 1373, Butte, Mont.	M.	Mar. 16, 1925
	Jun.	June 1, 1925
ZEIGLER, Charles Forrest. County and Res. Engr., Norton County, Court House, Norton, Kans.	Assoc. M.	June 1, 1925

Resignations

ASSOCIATE MEMBERS

Date of
Resignation

BROWNE, Wolstan Elliot.	April 1, 1925
JONES, Kenneth Swank.	June 3, 1925
KIRKWOOD, Howard Camberne.	June 3, 1925
MANDELL, Solon Baron.	June 3, 1925

Deaths

ANDERSON, George Lee. Elected Junior, June 19, 1922; died May 8, 1925.	
BARDOL, Frank Valentine Erhard. Elected Member, May 2, 1900; died April 9, 1925.	
BELL, James Charles. Elected Member, November 9, 1920; died May 15, 1925.	
BENZENBERG, George Henry. (Past-President.) Elected Member, May 2, 1883; died May 31, 1925.	
BOSARD, Ralph. Elected Associate Member, January 14, 1918; Member, April 8, 1924; died May 8, 1925.	
BOWSER, Edmund Hamilton. Elected Member, June 1 1904; died May 8, 1925.	
BURT, Aaron Moulton. Elected Member, May 31, 1916; died April 20, 1925.	
CHRISTIE, William Wallace. Elected Member, June 3, 1908; date of death unknown.	
DAVIS, Charles E. L. B. Elected Member, July 12, 1877; died June 4, 1925.	
DEVIN, George. Elected Member, September 7, 1887; died May 28, 1925.	
FOX, Henry. Elected Member, July 1, 1909; died June 8, 1925.	
FOX, Stephenson Waters. Elected Junior, July 7, 1880; Member, October 6, 1886; died May 8, 1925.	
GARDNER, William Montgomery. Elected Member, December 7, 1904; died May 8, 1925.	
GIAVER, Joachim Gotsche. Elected Member, September 12, 1916; died May 31, 1925.	
HANNUM, William. Elected Associate Member, November 25, 1919; died May 8, 1925.	
HEUER, William Henry. Elected Member, March 3, 1880; died April 28, 1925.	
JACOB, Thomas Nottingham. Elected Member, May 4, 1909; died May 25, 1925.	
KIRKPATRICK, Walter Gill. Elected Associate Member, April 6, 1892; Member, October 5, 1898; died May 8, 1925.	
LAWRENCE, Charles Walter. Elected Associate Member, January 8, 1908; Member, January 20, 1922; died April 1, 1925.	
MCNEILLY, Robert Hugh. Elected Associate Member, November 26, 1923; died May 8, 1925.	
MERRIMAN, Mansfield. Elected Junior, May 12, 1875; Member, September 3, 1884; died June 7, 1925.	
MILLER, Charles Henry. Elected Member, May 2, 1899; died May 8, 1925.	
NORCROSS, Paul Howes. (Director.) Elected Associate Member, July 9, 1906; Member, May 7, 1913; died May 8, 1925.	

PAGET, Edmund Winter. Elected Member, June 5, 1901; died February 20, 1925.
 PERKINS, Alva Harold. Elected Associate Member, October 9, 1917; died April 8, 1925.
 POOLE, Charles Oscar. Elected Member, October 21, 1924; died April 2, 1925.
 SHEARER, Charles English. Elected Associate Member, December 6 1910; died May 8, 1925.
 SHELDON, Frank Lawrence. Elected Associate Member, June 6, 1921; died June 22, 1925.
 STUART, Joseph Thompson. Elected Member, May 4, 1904; died February 13, 1925.
 WALKER, William Olin. Elected Junior, March 7, 1921; Associate Member, May 28, 1923; died May 8, 1925.
 WILEY, William Halsted. Elected Member, February 17, 1869; died May 2, 1925.

Total Membership of the Society, June 30, 1925

Members	4 975
Associate Members.....	5 281
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Corporate Members.....	10 256
Honorary Members.....	13
Juniors	793
Affiliates.....	156
Fellows	8
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Total	11 226